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Handling Tonnage on Local Freight Trains

Not all railway men will agree with Mr. Garner in his condemnation of the practice of handling tonnage on local freight trains, in an article on this subject on another page. No one will approve of the practice of overloading local freight trains in the direction of light tonnage, as was done in the instance he cites, but any cars which a local train can haul in the direction of prevailing tonnage not only help the division tonnage statement, but also reduce the amount of light train movement in the opposite direction. The problem is purely an economic one. On a run over a long district or in which a train has a great deal of switching to do, it may be difficult for it to get in to its terminal without overtime without bringing in any additional cars. In such a case the advisability of loading the train down will depend on the relation between the amount of overtime created and the value of the additional service performed. On most roads many local freight trains can haul considerable tonnage in addition to their local cars without creating much overtime. The extent to which such trains should be loaded requires special consideration in each case. No general rule can be laid down because the length of engine district, the number of opposing trains, and the amount and character of the local work to be done may make utterly impracticable on one district what is entirely economical on another.

Difficulty of Weeding Out All Bad Men

A clear-headed superintendent, explaining recently a butting collision which occurred on his road, where the conductor, the engineman and the fireman, of an extra, all forgot a regular passenger train, the schedule of which they well knew, said that the collision was due to the fact that three "weaklings" had been assigned to the same crew. The conductor had once been dismissed for causing a collision, and was not a strong character. The engineman had been suspended three times, and was known to indulge to some extent in gross immoralities. Both were cigarette smokers. The fireman had no flaws in his record, but had had a scandalous domestic difficulty. "And," says the superintendent, "having in the service such men as these, the best way to frame up a collision is to get them together in the same crew." This is a very interesting lesson. It suggests that a superintendent has important responsibilities in the handling of his men which cannot be delegated. Only the superintendent himself, aided by trainmasters of strong character, can extirpate such faults as these. Reports by the Interstate Commerce Commission and other public authorities are pretty sure to stop short of any profitable investigation of men's habits off duty (unless they get drunk); and yet these may be elements of grave danger; and the public remains in ignorance. Most superintendents, no doubt, will reflect that it is impossible to keep a large force of trainmen free from a small percentage of weak men, and, unless full of courage to follow the matter constantly and of ambition to make the most creditable possible record, will be contented with that reflection. Perhaps it would be a good rule (not to be published, however) to make sure of at least one wholly trustworthy man on every train. This would be far from ideal, and when we say this we shall not be accused of dealing in counsels of perfection; but it is a condition, not a theory, that confronts us.

The Lesson of Four Collisions

The report of H. W. Belnap, chief of the division of safety, to the Interstate Commerce Commission on the butting collision of passenger trains on the Western Maryland at Thurmont, Md., in June, noticed in our last issue, is a forceful document. He describes the circumstances with but little waste of words, and the cause of the disaster is clearly indicated. He places the immediate responsibility on the despatcher, where it belongs. He gives that officer whatever benefit can accrue to him, from the claim that he had been overworked, but also puts in the testimony which weakens this claim. The report does not decide how far the despatcher's claim should be accepted; neither does it discuss the weakness in the code of rules by reason of which an experienced despatcher can fall into such a dangerous error; but so far as concerns the lesson for the future, these features are not important. The inadequacy of the American train despatching system, as a means of securing satisfactory safeguards against butting collisions, has long since been demonstrated, and the report, wasting no words on this point, goes directly to the main issue, the need of the space interval system. Mr. Belnap had recommended the introduction of the block system, on this road, three times, in connection with three butting collisions, over

two years ago, and he says now that that system is "urgently required." He might have used equally strong language in 1912. And he gives the road ample latitude. He does not call for automatic signals, costing $1,500 to $2,500 a mile. He does not commit the government to any plan or method or apparatus; he simply calls for an adequate block-signal system; not necessarily any costly devices. Station agents, with nothing but red flags and lanterns, can and do maintain an "adequate block-signal system." Automatic signals do, indeed, constitute the ideal system; but the non-automatic system was introduced last year on over 8,000 miles of railway in this country, much of it by such companies as the Southern Pacific, the Chicago, Milwaukee & St. Paul, the New York Central Lines, and the New York, New Haven & Hartford. This report contains instructive reading for all railroads which do not use the space interval.

ALTON, NEW HAVEN, FRISCO—AND NOW ROCK ISLAND

ALTON, New Haven, Frisco, and some more, and now Rock Island! The Interstate Commerce Commission has written some unpleasant reports as a result of its investigations of the managements of various railways. But one of the most disgusting of them is the one issued last week regarding the Rock Island. Persons may differ as to the construction that should be put on a number of details which the commission mentions, such as the salaries and bonuses paid to certain officers. But these are minor matters. The only way the interpretation put on them affects the picture as a whole is to make it a little blacker or not quite so black. Regarding the important and essential points covered by the commission's report, there is room for difference of opinion. Taken together, they make up a record which for sordidness and dishonorableness in corporate management has hardly been surpassed.

There are two separate and distinct aspects of the Chicago, Rock Island & Pacific case which should be and must be kept separate, if any fair judgment is to be passed on it. One is the relation between the railway company and its management and the public served by its 7,000 miles of line. The other is the relation between the controlling interests in the company and the other security holders.

The Interstate Commerce Commission, in its report, which was printed in last week's issue of the *Railway Age Gazette,* almost in full, failed to keep these two aspects of the case separate. This may be partly due to the fact that it is doubtful whether the commission can with propriety make an investigation of the relations between the various class of security holders of a railway company. Consciously or unconsciously, the commission may have felt it necessary to drag in a measure of wrong to the general public, which no line of the very voluminous testimony taken justifies. There was not one shred of evidence to show that the actions of D. G. Reid or W. H. Moore, reprehensible as they may have been in some cases, and undoubtedly bad railroading as they were in other cases, had any effect on the freight or passenger rates or any important effect on the service of the Rock Island. Confusing the question of rates and service with the disposition of profit, does a positive harm. On the other hand, it has been a good thing to put before the investing public an account of methods pursued by these men in their control of the railway company.

It is not enough that the railways of the United States should be beset by increasing expenses and taxes, and by unfair regulation which aggravates the increases in their outgo while denying to them adequate additions to their income. Some of them must also, at this critical juncture, be subjected to ruinous forms of financial mal-administration.

Alton, New Haven, Frisco, and some more; and now Rock Island. What next?

But the people who are sensible and have the welfare of both the railways and the public at heart will not let their indignation be excited by the story of what the Diamond Match and tin plate magnates have done to the Rock Island blind them to the facts as to how the mismanagement of the property came about, as to who was responsible for it, as to who suffered from it, and as to the means which should be adopted to prevent such mismanagement in the future.

The initial wrong was done when a small group of men, by a comparatively small investment, acquired control of the management of a property representing a very large investment. The difference between the small investment they made and the large total investment which the Rock Island system represented, was property which belonged to other people. There is a flagrant defect in the government of a country whose laws permit a man or set of men to acquire autocratic control of a property by any means except actual purchase of at least a majority interest in it with their own money. But if the law allows this the man or men who get control will, if they have a sense of honor, recognize the fact that this vests in them a trusteeship; and it is the well-recognized moral and legal duty of a trustee to manage the trust property with the greatest care. He has no right to take even such risks with it as he would take with his own.

Apparently the notion that the peculiar character of their control of the Rock Island imposed on them special duties and obligations never entered the heads of the Reid-Moore crowd. They used its resources—which belonged mainly to other people—in the most reckless manner. They used them to get control of the Frisco, and lost $6,500,000 belonging to those who owned the Rock Island. They used them to buy into the Alton, and lost $6,370,000 more of the same people's money. They lost still more by frequent changes in the operating management, which made it necessary to pay bonuses to various persons. The real owners of the property—those who owned stock and bonds representing the bulk of the actual cash investment in it—had a right to have their property carefully and judiciously managed and developed. But those in control, whose investment was only a fraction of the total, managed the road and used its financial resources as if they owed no responsibility or duty to anyone on earth. The commission charges that even the reports of the directors to the stockholders were misleading. The method of bringing the receivership proceedings in the Chicago, Rock Island & Pacific case indicates strongly that Messrs. Reid and Moore don't give a hang whether the other security holders suffer or not. Those who oppose the increased intervention of government in business often make use of the phrase "rights of property." In view of Alton, New Haven, Frisco, Rock Island and other such transactions, the question naturally arises, "Whose rights of property?" Those who owned a majority interest in the Rock Island clearly had some rights of property. These were disregarded and trampled under foot by the minority owners. The term "rights of property" becomes a misfit when used as an argument against government intervention to prevent ruthless and unscrupulous minorities from dealing with a property as if it were their own and so managing it as to ruin if not actually to loot the majority. The time has come to recognize in this country the principle that men who want to speculate should be restricted to speculation with their own money, and that one of the inalienable "rights of property" is to have it protected from use as a speculative football by those who do not own it.

The worst feature of the Rock Island fiasco is the one above touched on—the injury done to innocent investors by a controlling faction apparently devoid of any sense of duty. But it has other bad features. From President Mudge down the personnel of the Rock Island's working organization is excellent. It includes some of the finest, cleanest, ablest railway officers in the United States. Nobody familiar with the facts doubts that Mr. Mudge and his subordinates have run the road as well as it could be run with the resources at their disposal. But financial mismanagement has unduly and unnecessarily restricted their resources. In consequence, they have been unable to make the improvements in the plant and operating methods required in the interest of the most efficient and economical working. Again, the Rock Island scandal has reflected odium on the managements of all the railways of the United States.

Along with the Alton, New Haven, Frisco and other similar offenses against good business and good morals it has contributed toward so prejudicing the public and regulating authorities against the railways as to render it impossible for them to get fair treatment.

It is to be wished that such mismanagement of railways could be stopped by publicity and the voluntary concerted action of railway financiers and executives. But experience shows that the hope that it will ever be stopped in this way is illusory. There is no way to keep unscrupulous financiers out of the railway business. There is no means except government intervention by which to keep them from committing depredations after they get into it. Therefore, as the commission points out, "by this case the need of some limitation on the issuance of stocks and bonds by common carriers, whether directly or through holding company devices, or otherwise, is again demonstrated." And legislation should go still farther than this. Some steps should be taken to hold directors up to the recognition and performance of the duties of their trusteeship. As the commission says elsewhere in its report, "This record emphasizes the need of railway directors who actually direct. * * * It suggests the need of a law to charge such directors with individual responsibility for the dissipation of corporate funds."

We don't want management of the railways of this country by the Interstate Commerce Commission or any other government body or bodies. We want management of them by their directors and officers. But the law and its administration should be made such that no man who accepts a position of trusteeship on our railroads can fail to perform his duties without being held responsible. When it is known that strict responsibility and accountability will go with every duty assumed there will be fewer outrageous and successful attacks made upon the "rights of property" by those who voluntarily assume the duty of managing large concerns.

FREIGHT TERMINAL CHARGES AT NEW YORK

THE railroads centering in New York City appear to have decided to acquiesce in the decision of the Interstate Commerce Commission disapproving a large part of their proposed increases in charges for lighterage, storage and other terminal services at that city. Some of the increases are approved, and the traffic managers seem disposed to go on for a while with what the commission has given them; though all of the proposed changes were the result of a careful attempt, made in good faith, to carry out the suggestions of Mr. Brandeis and of the commission, that this feature of the freight business should be put on a paying basis. There is no question but that a thorough investigation will show that many services are still unremunerative, and it will be the duty of the railways to put their evidence in better shape and to renew their application as soon as practicable.

The decision of the commission leaves the way open for a new application. As reported in the *Railway Age Gazette,* July 30, page 213, the significant part of the decision is in the last two paragraphs, in which it is said that (1) the tariffs are ambiguous, inconsistent and lacking in desirable uniformity, and (2) that as lighterage and other local charges have come to be understood as a part of the through freight rate, they must not be increased without considering the whole freight rate. Both problems are easily dealt with. We do not mean that it will be a small task to make uniform tariffs of terminal and harbor charges, or that it will be easy to convince the commission that a freight rate from St. Paul or St. Louis to Brooklyn or Astoria ought to be advanced, when the proof that it is too low involves such a complicated study; but in both cases it can be said that the men who are familiar with the field will know just what to do. A satisfactory degree of uniformity of tariffs may be unattainable, but the traffic men will know when they have done all that can reasonably be done; and with that the commission will, no doubt, be satisfied. As to the feasibility of showing that many of these services are done too cheaply, there is no doubt in the minds of those best acquainted with the business; it is only a question of patient study.

To appreciate fully the New York terminal situation, it is necessary to read Commissioner Meyer's full report. The document is so full of facts that it is not susceptible of satisfactory condensation. As a brief outline, we print in another column the statement made by Mr. McCain before the commission. This complicated freight-traffic field, with its 68 stations in New York and Brooklyn, besides many others on the New Jersey side, largely dependent on water transportation, constitutes perhaps the most costly and confused aggregation of dissimilar units to be found anywhere in the world. The present customs, under which the railroads do a vast amount of non-railroad service, are the result of strenuous competition among a half dozen powerful railway carriers; and this competition is a growth of 30 years and, in some of its elements, 40 or 50 years. In those years of railroad wars, when passengers were carried for a cent a mile, livestock a thousand miles for a dollar a car, and thousands of cars of all kinds of goods at rates below cost, the recklessness of spirit that was cultivated in traffic managers' minds pervaded all branches of the service, lighterage and storage among the rest. Why should a railroad terminating in Jersey City be doing business in Brooklyn? Or, assuming that a rail carrier, like a tramp steamship, may do anything under the sun, why perform the service at cost or less? Excessive competition; no other reason. A great ship needing a full load cannot sail for Europe until she is filled with 500 cars of grain; but why should the railroad, to accommodate the ship, hold these cars from a week to a month for nothing? Excessive competition. In the old days the New York Central would at times have three thousand cars of corn and wheat standing on its tracks in New York at once; and make not a cent of charge. Why? The same reason as before.

Commissioner Meyer, in his decision, includes a scientific, legal and precise statement of the principles which govern this business; but about the only principle that exercises the traffic manager's mind is to get down to a reasonable basis—a fair price for what he gives—as rapidly as possible. Flour used to be stored in railroad warehouses a whole year for nothing! At last a time limit was imposed, 60 days. Then this was reduced to 30 days, then 20, then 10; and now, in the face of the solemn declaration of the dealers that their business will be ruined, the commission agrees to a limit of five days.

Much of the confusion and disagreement connected with this business is due to one simple cause, the bigness of the city. The business of carting freight through the streets of Manhattan suffers from the same cause, and is very costly. A mere glance at the list of stations, showing their locations, explains many things otherwise inexplicable. The costliness of all kinds of freight transportation in and around the city and the baffling nature of the problem of reducing this cost are strikingly indicated by the magnitude of the engineering and construction schemes which during the past 20 years have been proposed for relieving the situation, and the entire failure of all of them, thus far, to secure acceptance.

The Interstate Commerce Commission's report throws very little light on the financial problem as a whole. The proposed charge of 12 cents a ton for handling freight at shippers' and consignees' docks was shown to be low, but it was disallowed; evidently because of the radical nature of the change which would be effected. That the city would be put to an additional expense of $100,000 for unloading steel for new subways was one of the striking passages in the report; but Commissioner Meyer does not say but that a charge should be imposed after this subway contract shall have been completed. An adequate charge for unloading may indeed amount to an increase of eight per cent in the freight bill on a shipment from Pittsburgh or St. Paul; but on many commodities, very likely, such an increase is needed, to abolish a discrimination against other cities. Indeed, a thorough study may show that the long-continued and

tremendous competition at New York has resulted in the permanent establishment of many rates which give it undue preference as against smaller cities. As equity between different cities is a cardinal point in the Interstate Commerce Commission's creed, this case certainly merits further study.

The financial problem as a whole is not perhaps susceptible of very satisfactory treatment; it is too big to be comprehended. The freight brought to and taken from New York city and harbor by the railroads in a year aggregates 25 or 30 million tons, a very large part of which has to take a water journey in the harbor, long or short. At the most common rate, 60 cents a ton, this means 15 to 18 millions of dollars for lighterage; and the value of the storage, on very costly ground, whether it is or is not charged for, adds other untold millions. Some freight is lightered for less than 60 cents, and some is not lightered at all; but there is a large volume on which the 60-cent allowance is less than cost. Thus, we see, the freight business of New York harbor, measured by gross cost, is equal to half the total traffic, both passenger and freight, of a railroad as large as the Michigan Central, the Lackawanna or the Lehigh Valley.

"DEPARTMENT OF PUBLIC POLICY AND RELATIONS"

THE executive committee of the Associated Railroads of Pennsylvania and New Jersey recently made an interesting report, recommending the establishment by the railways of the United States of a permanent "department of public policy and relations." This is the committee which carried on such an energetic and skilful campaign a few months ago for the repeal of the extra crew laws in Pennsylvania and New Jersey. Part of its report was published in the *Railway Age Gazette* of July 30, page 210. The proposed department, which should have a branch on each railway, should "represent the railroads in matters of public interest and in such other respects as may be deemed proper along the lines adopted by this committee in the recent campaign."

There can be no question as to the need of the railways for better organization to handle their public relations. They are beset with criticisms and attacks. Formerly there was a general and successful agitation for reductions of their rates. This having abated, efforts are being made from numerous sources to secure various kinds of regulation of their physical operation. Certain of their organized employees are especially active, their main aim being to get legislation to force the roads to employ more men than they need. There is, however, another side to the matter. The managements of individual railways permit, or cause to be done, many things which are impolitic or wrong and which incense the public, and much of the regulation proposed or adopted is provoked by such conduct on the part of the railways.

The railways have at present different organizations which are performing more or less successfully some of the functions that would naturally belong to a department of public policy and relations. The Special Committee on Relations of Railway Operation to Legislation has done good work in developing a constructive policy in regard to the regulation of operation, in conducting on behalf of the railways hearings before public bodies, and in carrying on negotiations with the Interstate Commerce Commission and other regulating authorities. Similar committees in many of the states have done good work. The Bureau of Railway Economics has been useful and effective in compiling and publishing accurate statistical and other information bearing on numerous railway matters. A number of very effective advertising and publicity campaigns have been carried on through different organizations, some of them permanent, others temporary. In many ways the most important organization of all is the Railway Executives' Advisory Committee on Federal Relations, which has been doing constructive work in harmonizing the points of view of the railway managements themselves and trying to bring about better relations between them and the federal authorities. The American Railway Association has never concerned itself much with regulation, although certain committees have co-operated with the regulating authorities and shippers in solving knotty problems relative to demurrage and kindred matters.

It would be a mistake to form a new department, such as that proposed, in addition to all the organizations now dealing in one way or another with public relations. Its functions would overlap those of existing organizations, and there would result a waste of energy and money, and probably friction. But it is worth while considering whether it is not desirable to create such a department, and substitute it for some of the existing organizations and co-ordinate it with the rest.

There would be several very serious obstacles in the way of its success. If it were understood to be intended to police the management of railways themselves, to promote fair and constructive regulation as well as oppose unfair regulation, and to use only legitimate and avowable methods in doing so, it might be favorably received by the press and public. It would not be so received if there was not manifested any purpose to use it to correct the shortcomings in the public policy of the railways themselves. It may be said that the reason why some organizations for more or less similar purposes have met with criticism, and been even blacklisted by the newspapers, has been that they were not well or tactfully managed. But how the proposed department would be managed would depend on who managed it, and to make it a success would require fairness, honesty, executive ability, knowledge of railway matters and diplomatic talent.

A very serious question is as to the attitude which would be assumed toward such an organization by the executives of the railways. The managers of our railways are very able men, but in the railway business great minds do not always run in the same channels. In consequence, the task of representing them in negotiations or speaking for them is a different matter from that of representing and speaking for a unified organization such as the American Telegraph & Telephone Company. Any one who in acting or speaking for them pleases some of them is apt at the same time to displease others. Furthermore, there are still differences of opinion among them as to the value of such work as would be done by the "Department of Public Policy and Relations." There are many railway executives who fully appreciate both the importance of educating public opinion and the ability, skill and special training required to do such work. There are others who have little appreciation of its importance and difficulty or of the special attainments required for it.

Even though it were feasible to get the railways to support some such central organization, it is questionable if they could be prevailed on to let it police their own acts. A committee of the American Railway Association a few years ago recommended that the association undertake the investigation of important accidents on behalf of all the railways. The report was pigeon-holed just as quickly as the association could reach it. Finally, it is questionable if the roads could be induced to establish departments of public policy and relations in their own organizations. Every large railway ought to have an officer of high rank charged exclusively with the studying and handling of its public relations; but many of them have not even competent publicity agents; and there is not one which has learned to use its advertising appropriation so as to derive the most benefit from it.

The committee of the Associated Railroads of Pennsylvania and New Jersey has done a good service in making recommendations adapted to cause discussion as to what the railways should do to improve their public policy and relations. Probably some step ought to be taken toward co-ordinating all the work now being done by different organizations in respect to national and state regulation. But the best results will never be obtained until the railways individually, and groups of railways in the same territory, make greater efforts to improve their local conditions and public relations. If the railways individually and in groups would take more advantage of the many opportunities constantly open to them to establish better relations with the public by remedying defects of services by having their officers meet and talk with the citizens more, by making more and better use of the various channels available to get before the public the

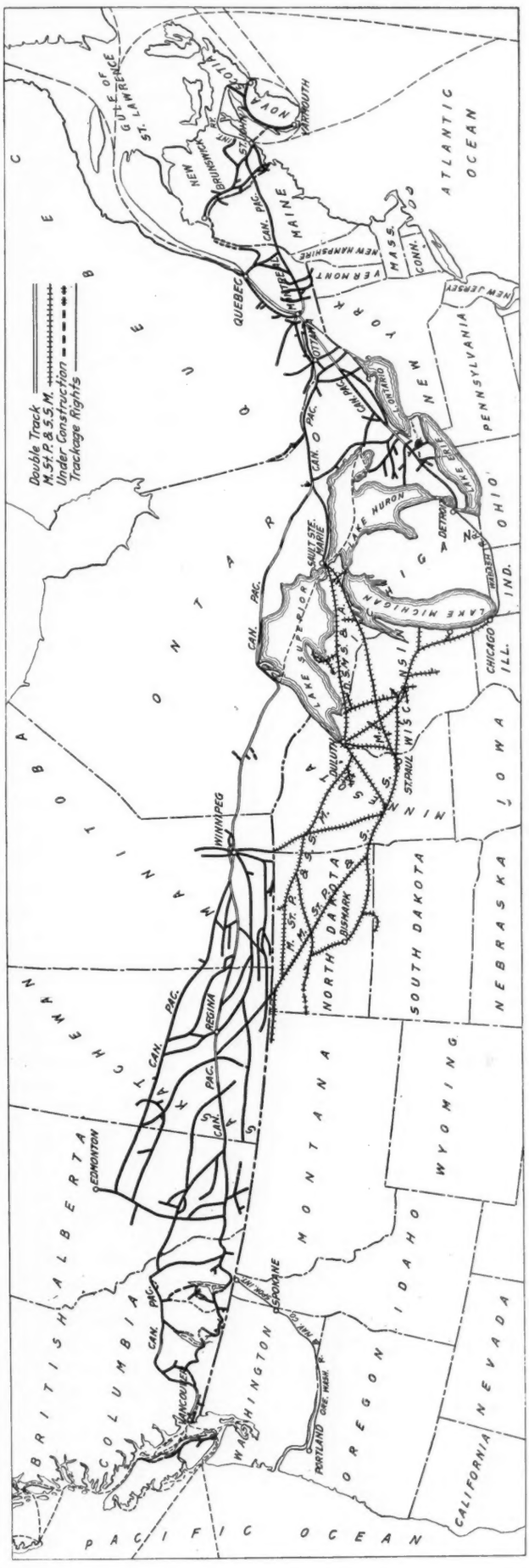
facts regarding the railway situation in general and the situation of the individual lines in particular, the various national railway organizations now in existence or that may be created, would be able to do more effective work. They could then serve better as clearing houses for good ideas and methods and as sources of statistics and information for general use. But so long as a majority of managements take so little interest in the problems of public relations that they have no specially trained and competent officers or departments to deal with them; so long as the local public relations of many roads are left in an unsatisfactory condition; so long as the managements do not even keep informed as to what the organizations they have created to improve public relations are doing—just so long will it do comparatively little good to form another organization of national scope to deal with public relations.

The greatest danger to the future of the railways consists in the fact that, while the attitude of the public toward them has changed greatly, it is still so prejudiced against them that it is inclined to receive favorably almost any additional restrictive regulation of them. The greatest problem of the railways, as respects their public relations, is, therefore, not merely to devise means of more energetically fighting such proposed regulation, but to devise and carry out a program which will so completely change the attitude of the public to one of friendliness and sympathetic interest that instead of its first impulse being to favor every proposal for restrictive regulation, its first impulse will be to oppose it. In carrying out such a program strong organizations representing and working for all the roads can help a great deal. But they cannot carry it out alone, and they cannot be raised to their maximum practicable efficiency unless the various individual roads and groups of roads carry out those parts of the program which they alone can under any circumstances carry out.

CANADIAN PACIFIC

TWO or three months ago there was some speculation as to whether the Canadian Pacific would earn its dividend, and whether, if it did earn it by a small margin, the directors would see fit to declare the full 10 per cent rate. The full 10 per cent is made up from two sources; seven per cen is paid from the operation of the railway lines and facilities directly connected with their operation, such as sleeping cars, and 3 per cent is paid from "special income," which is made up of the interest and dividends received on securities owned, earnings of steamship lines, hotels and commercial telegraph. The company by heavy cuts in expenses succeeded in earning the 7 per cent from the operation of the railway lines, and through the receipt of larger special income, which not only paid the 3 per cent, but left a substantial margin over, had a final surplus of $3,300,000.

It was generally known for some time before the close of the fiscal year that the Canadian Pacific would show a very much smaller gross income from railway operation in the year ended June 30, 1915, than in the previous year. The question, therefore, was as to the ability of the management to cut down expenses correspondingly to the falling off in earnings, and as to how much effect the business depression had had on the company's special income. Even to a good many who have followed the recent history of the Canadian Pacific it will come as a surprise that with a reduction in gross earnings from $129,815,000, earned in 1914, to $98,865,000, or 24 per cent, expenses could be held down more than correspondingly, so that the operating ratio was 66.04 in 1915, as against 67.32 in 1914. The loss of $31,000,000 in revenue is serious enough to tax the resourcefulness of any railroad management in America, even if it had occurred under ordinary conditions and had been spread over two or three years. To have this loss occur, however, all in one year and at the same time have exacting demands made on the company for military service is a problem so vast as to be not easily comprehensible. There have been railroad managements in the United States which have had very great losses in gross revenue and which have in a period of two or three years reduced their



The Canadian Pacific System

expenses to correspond, but seldom, if ever, has the problem been met so quickly and on such a large scale.

It is remarkable that the management was able to divide this drastic saving in expenses quite evenly between maintenance and transportation. The following table shows the percentage of gross earnings consumed by each class of operating expenses which are usually shown in United States reports, the Canadian Pacific showing separately certain other expenses mentioned later:

	1915	1914
Maintenance of way and structures	11.5	12.6
Maintenance of equipment	11.4	12.8
Traffic expenses	3.0	2.8
Transportation expenses	32.5	32.6
General expenses	4.0	3.3

The classes of expenses which the Canadian Pacific shows separately are parlor and sleeping car expenses, lake and river steamers and commercial telegraph. The expenses in 1915, as compared with 1914 for these accounts, are as follows:

	1915	1914
Parlor and sleeping car	$1,111,253	$1,348,979
Lake and river steamers	1,051,782	1,183,397
Commercial telegraph	1,382,507	1,613,688

The revenue from sleeping cars, express, telegraph and miscellaneous in 1915 was $12,694,000, as compared with $15,069,000 in the previous year.

In 1915 the Canadian Pacific carried 7,734,400 ton miles of revenue freight, a decrease of 27.04 per cent as compared with the previous year. The mileage made by freight trains was 16,896,000, which is less by 30.08 per cent than the mileage in 1914. Thus the average trainload of revenue freight was 411 tons in 1915, as against 407 tons in 1914, and this despite the fact that whereas loaded car mileage decreased 23.17 per cent, empty car mileage decreased only 14.94 per cent. It is true that there was a large decrease in the tonnage of non-revenue freight carried, due to the comparatively small construction work carried on last year, and that the average non-revenue freight per train-mile was 52 tons, as against 57 tons in 1914, so that the total trainload was about the same in the two years—463 tons in 1915 and 464 tons in 1914. The actual load behind the drawbar including weight of equipment, was very materially increased because of the greater proportion of empty cars. Undoubtedly a part of the freight handled in 1915 was for the use of the British government and had to be handled on very fast schedule.

Revenue passengers carried totaled 13,086,000 in 1915, a decrease of 15.30 per cent; but there was a big falling off in through travel, so that the average passenger journey was 88 miles as against 102 miles the year before. This made a reduction in passenger mileage of 26.44 per cent. Passenger-train mileage amounted to 17,977,000 and was less by 16.48 per cent than passenger-train mileage the year before. There was, therefore, apparently no drastic cutting of service, and the movement of troops, of course, had to be done on special schedules, with the consequent danger of congestion and probability of higher cost.

Even a management that has set as high standards for itself as the Canadian Pacific might well feel that it had made a new record in the year ended June 30, 1915.

The ease with which earnings from outside operations could be made to supply the necessary margin of safety which even the remarkable cut in expenses could not effect is not so much of a surprise to most people who are at all familiar with the vast resources which the Canadian Pacific has in addition to its 12,917 miles of railroad. The statement of this special income from outside operations is not made in exactly the same way in 1915 as in 1914, which prevents an exact analysis of how the increase was made. In 1915 the earnings from ocean steamships were combined with that from hotels and the total amounted to $4,370,000. In 1914 the earnings from ocean steamships are shown separately and amounted to $784,000. In 1915 the net earnings of Pacific coast steamships, commercial telegraph and news department are combined and amount to $1,494,000. In 1914 these earnings from Pacific coast steamships, commercial telegraph and news department are added to the earnings from hotels and amount to $2,134,000. If there is no significance to the fact that the word "net" is left off from the earnings of hotels in 1915, and apparently there cannot be any, since in the table showing receipts and expenditures the special income is shown as a net figure against which there is no expenditure, the combined earnings of ocean steamships, hotels, Pacific coast steamships, commercial telegraph and news department for 1915 amount to $5,864,000, as against $2,918,000 in the previous year.

The only sales of securities which the Canadian Pacific made during 1915 were the issue of £504,914 ($2,524,570) 4 per cent preference stock, for which it received $2,182,763, and £611,797 ($3,058,985) consolidated debenture stock, for which it received $2,781,731, and the Victoria Rolling Stock & Realty Company bonds, which were held in the treasury in 1914, and for which the company received $13,630,000. The company redeemed £2,074,000 ($10,370,000) first mortgage 5 per cent bonds and deposited funds for the redemption of the remaining bonds, so that the Canadian Pacific has the unique position among large railroads of having almost no funded debt except its equipment obligations. The total paid for the redemption of bonds or deposited against their redemption in 1915, was $13,875,658. In addition the company paid off $1,570,000 equipment trusts and spent $9,090,000 for additions and improvements to its main line and branches and $1,596,000 for additions and improvements to its leased lines. At the beginning of the year the company had $36,778,000 cash on hand, with total current liabilities of $22,035,000. At the end of the year the company had $17,055,000 cash on hand, and $12,552,000 current liabilities.

The following table shows the principal figures for operation in 1915, as compared with 1914:

	1915	1914
Mileage operated	12,917	12,044
Freight revenue	$60,737,737	$81,135,295
Passenger revenue	24,044,283	32,478,147
Mail revenue	1,389,334	1,132,715
Sleeping car, express, telegraph and miscellaneous	12,693,856	15,068,667
Total operating revenues	98,865,210	129,814,824
Maintenance of way and structures	11,400,539	16,426,582
Maintenance of equipment	11,307,965	16,617,247
Traffic expenses	2,990,164	3,626,612
Transportation expenses	32,083,170	42,250,286
General expenses	3,963,204	4,322,104
Parlor and sleeping car expenses	1,111,253	1,348,979
Lake and river steamer expenses	1,051,782	1,183,397
Commercial telegraph expenses	1,382,507	1,613,688
Total operating expenses	65,290,582	87,388,896
*Net operating earnings	33,574,627	42,425,928
*Net railway income	23,128,117	32,198,617
Special income	9,475,181	6,472,028
Net available for dividends	29,294,906	38,670,645
Dividends	29,169,906	26,031,654
Pension fund	125,000	125,000
Surplus	3,308,392	12,513,991

*It is not plain whether the taxes are deducted before arriving at net earnings or are included with fixed charges and deducted before arriving at net railway income.

NEW BOOKS

Universal Directory of Railway Officials. Compiled under the direction of S. Richardson Blundstone, editor of The Railway Engineer. Bound in cloth; 580 pages; size, 6 in. by 9 in. Published by the Directory Publishing Company, Ltd., 15 Farringdon Avenue, London, E. C. Price, 10s.

The twenty-first edition of this directory of railway officers of the entire world does not seem to have suffered very appreciably because of the war. The compiler, however, has found it necessary to omit the sections relating to the railways of Germany, Austria, Hungary and Turkey and it has not been possible to correct the sections dealing with the railways of Belgium and certain parts of France. The information in the directory has been compiled from official sources. It is remarkably well arranged and includes not only the names of the officers of the railways, but also the gage of each railway, the number of its cars and locomotives and the location of its general and other officers. The roads, naturally, are classified in alphabetical order by countries and the latter by continents, but there is an alphabetical index of all the lines and also an alphabetical list of all the officers mentioned. The book is indispensable to railway supply firms doing a foreign business. It is unfortunate that copies are not on sale in this country.

American Association of Railroad Superintendents

Abstracts of Committee Reports and Papers Presented at the Twenty-Eighth Annual Convention at San Francisco

The twenty-eighth annual convention of the American Association of Railroad Superintendents was held at the Sutter Hotel, San Francisco, Cal., on August 19 and 20, with an attendance of nearly 150. President Charles Burlingame, superintendent of the Wiggins Ferry Company, St. Louis, presided. After an opening prayer by Dr. George E. Burlingame, pastor of the First Baptist Church of San Francisco, J. Emmet Hayden gave an address of welcome in behalf of Mayor James Dolph, Jr.

MR. SPROULE'S ADDRESS

William Sproule, president of the Southern Pacific, then addressed the meeting on "The Public Influence of the Railroad Superintendent," in which he said in part:

If I were asked to point to any branch or phase or activity of the railroad service for the typical railroad man I would without question point to the superintendent. He has to deal with all phases of human nature, either directly or indirectly, either under his personal touch or his official control. He has to deal alike with the mechanism of railroading, and with the minds of men. In the great stress of his duties and the personal strain that is on him during all of his waking hours, he is apt to be so wrapped up in his business that there is obscured to his mind the fact that he is a personage in his walk of life, exercising a wide influence of which he is largely himself unconscious.

Not only does he control the mechanical organism which makes his division a living thing, serving the purposes of the public and of the owners at the same time, but he deals, through his organization, with the traveling public and the shipping public and the thinking public in general. Of the community, the largest percentage, for example, form their opinion of the railroad and its service by the people connected with the railroad with whom they come in contact. I might perhaps say, and you will probably agree with me, that a very large proportion of the public form their opinion from their contact with the clerk in the ticket office, to whom they come for information; the ticket clerk, when he sells them their tickets; the baggageman, the trainman, the conductor, the engineman, and last, but not least, the redcap. The handling by these men of the public gives the stamp of approval or disapproval on the part of the public, in large measure, and these men are all under the influence and control of the superintendent.

To-day, more than any other period, is a time when business men have to meet the minds of other men. Never was communication so swift, so broad and human intercourse so active as to-day. It has made the minds of men correspondingly active. We are, so to speak, in a condition of mental fermentation all of the time. It makes us a nervous sort of people. Now, when we, as railroad men, do business, we have to remember this, not only with respect to the men in the service, but more particularly with respect to the people out of the service, as they are the people to whom we wish to sell the only wares we have to offer, transportation. In doing it we have to meet their minds. They expect of us service, not as a private corporation, not as the representatives of private capital, but as the representatives of private capital devoted to public service, and they expect our conduct toward them to be that of public servants.

This is not altogether an undesirable attitude of the public mind. The more we adapt ourselves to it the better railroad men we are, the more useful are we to the public and the more likely are we to get results for the stockholders and the security holders with results satisfactory to the public. It is true that in the transition period, which has run along now for a generation, between the time when railroads were regarded as strictly private property, to the present, when they are regarded as private property under public control, we have learned that a continuance indefinitely of the policy of regulation, without recognition of responsibility with it, will not make for the service of the public or meet the public needs. And to you it falls to help us to make that difficulty plain to the public mind. Their minds need to meet ours upon that question. In proportion as the public come to realize that the railroads are endeavoring to give the public good service and are actuated by direct motives, with direct methods, in the same proportion will they accord us, I believe, their confidence and will realize that the railroad business is in precisely the same situation as any other business and as the business of every other concern, namely: there must be such a margin between the income of the railroads and the expenses of the railroads as to make the railroad business attractive for capital, which is merely the savings of the people, and to make those savings secure when invested in the railroad business.

In the process of bringing that conviction home to the public, I know of no factor greater than the influence of the division superintendent. His attention to the public wants, his desire to meet the wishes of the shippers, to serve the traveling public well, to make them feel at home upon his road and upon his division; that influence of the superintendent is bound to extend into every avenue of the service, into every phase of employment within the railroad service, and the influence of the superintendent extending throughout his jurisdiction, will be felt by a greater number of people than any amount of literature, so-called, circulated through pamphlets and the public press. This widespreading influence will help greatly to give living effect to the things that we are trying to impress on the public, so that the public may see things in our way and we at the same time look into the public mind to see wherein we can stand on common ground. In the railroad business this is of great importance, because a railroad, once built, is laid, for the purposes of men to-day, forever. And we to-day are laying the foundations for the future in the public attitude toward the carriers, which finds reflection in governmental attitude toward us, and we are laying, above all, the foundation for an efficient public service, one of growing and of increasing efficiency of which this nation can well be proud. Let us build so well that private ownership may accomplish all that good government should desire.

I am delighted to say that in my own railroad career, which is now getting gradually to be a long career, I have always found the division superintendent to be co-operative with other departments, anxious to find out the wise thing to do for the company, thinking about it, developing his own theories and plans, full of initiative, anxious about his men, desirous for them and besides this so self-sacrificing, as to himself, that he constitutes in that fact a tribute to the service.

Gentlemen, in these manifold influences of yours the attention which you give to the shipping and traveling public and to the people generally is of growing importance, and together with the technical and active and human attention you necessarily give to the company, within its own organization, constitute the superintendent a man of increasing force in the service and in the community; a man of increasing importance to the company, and that increasing importance will redound to your interest and inevitably be recognized by the companies you serve.

THE SUPERINTENDENT

W. R. Scott, vice-president and general manager of the Southern Pacific, read a paper on "The Superintendent, Past, Present and Future," in which he reviewed the course of development

from the days when the superintendent was in entire charge of all departments and through the period of more intricate organization when the traffic department came into existence and competition in rate-making came into play. He then continued:

Competition in rates is past; but that does not mean that competition is dead. Competition in service remains, and herein appears at once the opportunity and the responsibility of the superintendent. This competition of service will represent something finer and higher than the usual things which we have expected from struggles. It will not be secret and conspiring, seeking its ends by unfair means, but will be open and square in the sight of all men. Its motto will bear no such brutish legend as "The survival of the fit." Its method will not be to kill the unfit, but rather to teach him how to be fit. Your association is one of the evidences of this form of competition.

The orderly progress of the work demands that the railroad superintendent of the future be greater in his accomplishment than the superintendent of the present or of the past. New and complex problems will confront him and to him will be assigned the duty of satisfying the public. With rates handled and approved by government, the existence of the present day traffic department, as such, will not be necessary, but it will be organized along different lines. We will have our rate bureaus for the purpose of assisting in hearings on rate matters before commissions and tribunals and for the co-ordination of connecting lines for the proper divisions of rates, and we will have solicitors for traffic. Inasmuch as no favor can be given to shippers to induce traffic to travel by any particular channel, the only thing that will govern the securing and movement of traffic will be service in addition to solicitation, and service the most important of all. The superintendent is responsible for the service rendered and the cost of it, about 75 per cent of the total expenses of railroads being disbursed under his direction. The solicitors for service, therefore, should be on the superintendent's staff, as he is the man charged with the responsibility of rendering the service and is in constant personal touch with the patrons of the line and for this reason can best serve and satisfy them. Competition will be measured by the quantity and quality of service rendered the public for the published price. As illustrative of my meaning, you and your predecessors have so trained your forces that railroad travel on many lines is perhaps more safe so far as danger or risk of accident is concened than is the ordinary life at home.

But there are other matters to be considered. Loss of freight between origin and destination; loss of freight at originating point due to improper marking or checking; damage to freight as a result of rough handling. There are constant drains on railway revenues. All such matters are within the superintendent's jurisdiction, and correction of these defects and the rendering of perfect service will be the best advertisement that any railroad can have. And this, together with courteous treatment of the public by officers and employees, will be the determining factor in the railroad's popularity.

The superintendent of the future will probably see quite a change in the relation of government to railroads. It may take one of two forms. If the public is satisfied that the business of the railroads is efficiently and economically administered it is possible that additional earnings will be permitted to enable the railroads to make improvements and add the facilities that are so much needed to keep up with the growth and development of the country, as well as to overcome the constantly increasing expenses of the railways, which will continue through increased wage allowances and the increasing cost of materials. The other form would be government ownership if the public continues to be misled by politicians who insist upon harassing the railroads and clamoring for their further repression. This has had the effect of misguiding a good many railway employees and the tendency now is for presentation on their part of the choice of granting extravagant wage increases for a day's work or having the service paralyzed. If the latter policies are adopted it will do much to hasten government ownership of railroads. The superintendents of to-day can do more than any other set of men to counsel the great organizations of railroad employees along the lines of reasonable action, which in the end must mean so much for their welfare. Much good has been done by these organizations in the past in controlling their men and improving the service of the railroad. But the most can be done by such treatment of the public and such service to the patrons that the last lingering resentment against railroads will be buried with the past.

PRESIDENT'S ADDRESS

President Burlingame in his address referred to the rapid growth of the association, both in membership and in usefulness, since its reorganization in 1911, when the membership was changed from railroads to individuals. He recommended an amendment of the articles of association to include in the membership general superintendents of transportation, superintendents of transportation, general inspectors of transportation, assistant superintendents of transportation, assistant general superintendents and assistant trainmasters. He also recommended an increase in the number of members on committees. He spoke of the increasing recognition on the part of general officers of the value and importance of the association, saying he had adopted the policy of asking the approval of superior officers to the appointment of their superintendents as committee members in order to insure their co-operation, and that of 50 vice-presidents and general managers so addressed, 41 had given favorable replies.

He outlined the field for the work of the association toward improving the efficiency of operation as follows: Reducing the number of cars handled in proportion to the amount of freight and the number of passengers transported; reducing the consumption of fuel and other supplies; reducing to a minimum the amount of labor necessary to the movement of freight, to be brought about by a careful analysis of the conditions surrounding the transportation of freight at different points, and watchful supervision of the various elements necessary to bring about maximum results with minimum expense; creating in the minds of the employees an enthusiastic spirit and morale; reducing hazards to both life and property; bettering the working condition of employees; providing service satisfactory to the patrons; standardizing practices as far as possible and preventing loss and damage to freight.

The members of the Superintendents' Association, he said, being directly connected with operation, should be the best qualified to recommend changes in operating rules and methods, to be referred to the American Railway Association, in the interest of standardization. One of the important subjects for the superintendents to consider is the waste in wrong routing of good order empty cars and the setting back of bad order cars. At St. Louis a plan is being tried by which each superintendent will keep a record of all cars wrongly delivered by each connection from day to day, and at the end of the month reports showing wrong deliveries with the date, number, initials, cause of set-back and percentage of cars set back to the total of cars delivered will be sent to the superintendents of delivering lines under personal cover. If proper action is not taken to reduce the number of set-backs the matter will be taken up by the general managers of the lines involved.

TRAIN DESPATCHERS AND DIVISION OFFICIALS

J. P. Finan, despatcher, Atchison, Topeka & Santa Fe, read a paper on "Train Despatchers and Division Officials," in which he said in part:

There is no test of man's ability in any department of the railroad more severe than service as a train despatcher. There is no position where so little consideration is shown for the rights and feelings or failures of man as the train despatcher's, yet they are a class upon whom a great deal depends for the safe and efficient operation of the division and their duties are such that no man can perform them without meriting, at times, even just criticism.

If the train despatcher makes a mistake, which he sometimes

does, he usually pays for it with usurious interest. He is often criticised and censured in a manner not conducive to safe and efficient operation. When such criticism or censure borders on abuse, as it sometimes does, it results in discontent and reduced efficiency. It unnerves the despatcher and makes him dissatisfied, afraid and uneasy, and while in that mental attitude he is not capable of doing good work. Any official who thinks such a method is the best way to deal with his train despatchers, thereby confesses his inability to wisely govern and efficiently direct other men of intelligence and moral rectitude.

When a train despatcher must be criticised or censured, the object should be prevention and not punishment. He should be admonished or corrected in a way that will still leave him a useful and loyal employee, whose sense of justice and self-respect remains unwounded. It costs railroads something to make a train despatcher. If he has done good work for a year or so, he is too valuable a man to be driven out of the service by harsh treatment or thrown in the scrap heap because of some slight mistake or oversight.

The ever present expectation of being called to account is a most wholesome check upon a train despatcher. It makes him watchful and furnishes an incentive which inclines him to hold others to a strict accountability and carefulness in the discharge of their duties. But he expects and appreciates, and I may venture to say, deserves, consideration and courteous treatment.

Division officials should remember that the arbitrary power they exercise is delegated to them in the interest of the company and should never be wielded except to advance its affairs. The best interests of the company demand that you accord to the train despatcher about the same kind of treatment you expect and wish to receive from your superior officers. When the train despatcher is harshly criticised, or severely censured, he loses his mental equilibrium for a time, much to the detriment of the service, and if such treatment continues to be a regular thing, he becomes dissatisfied and begins to look around for another position.

It is highly important that those who fill positions of responsibility should remain uninterruptedly in the service. The train despatcher is no exception to this rule. Without continuity of service on the part of its train despatchers, a division can never hope to maintain a very high degree of efficient operation. Wherever this principle is practiced, you will find a safe and efficient service and where there are constant deviations from it, you will find just the reverse.

Frequent and abrupt changes of despatchers should be avoided as they tend to disturb the minds of the men and lessen their interest in the service. They should not be censured or criticised needlessly. To do so is to unsettle the service and lessen the zeal and loyalty of the men. Mistakes that are not discreditable, or that do not result from inherent wrong, should not be judged too severely. Those who are supposed to pass judgment should be considerate of the conditions which contribute to bad results.

Failure to recognize these plain principles, of which I speak, has, upon two occasions, aggravated an attempt to form a protective organization for train despatchers. In 1892 the attempt dismembered and disrupted the Train Despatchers' Association, In 1911 a considerable number of members left the association, following the Baltimore convention, because that convention wisely, and practically unanimously, defeated the resolution which was intended to change the constitution in a manner which would have made of the Train Despatchers' Association a protective organization.

The cause of such dissension, remember, was not so much a question of wages or hours of service, but that a great many train despatchers felt that they were not treated with the same fairness and consideration accorded other railway employees, nor that which was due their standing as train despatchers, and smarting under a sense of discrimination, looked towards labor unionism as a remedy, mistakenly, as I believe.

Train despatchers easily adapt themselves to their income, whatever it may be, and do so cheerfully and happily, as long as its permanency is assured. But when doubts develop, that moment they become afraid, uneasy, discontented and open to improper suggestions.

It may not be well known to you, but it is a regrettable fact, nevertheless, that a considerable proportion of train despatchers are criticised and censured in such a manner that they do not feel secure in their positions. And while, perhaps, such fears may be largely groundless, they do exist and tend to disturb the minds of many train despatchers, thereby lessening their usefulness. And until this feeling is removed, until this apprehension is entirely eliminated from the lives of train despatchers, railway operation will be the loser in the value of the service rendered by this class and the element so affected will still contend that concerted action on the part of train despatchers, through some organized effort, is necessary in order to secure them the fair treatment they feel they deserve and should have.

There should be no more reason for a protective organization for train despatchers than there is for such an organization for superintendents. Train despatchers may not be formally recognized officials, on all railroads, but they cannot be divorced from the intimate relationship they hold with the division officials. It can readily be seen that their positions should be considered from every standpoint of official capacity and are not similar, in any sense, to the positions held by other employees who are affiliated with and obligated to organizations demanding from them a loyalty paramount to the loyalty they owe to the company.

It is only fair to admit, however, that some railroads do consider their train despatchers as members of their official family and treat them as such, according to them every kindness and courtesy that is consistent and possible to give, such as two weeks' vacation, at full pay, once a year, sending one despatcher from each division to the annual convention of the Train Despatchers' Association, compensating such men for time and expenses while absent from duty on that mission; granting system annual passes to despatchers and dependent members of their families, all of which fully establish a substantial recognition of the official status of the train despatcher.

I point with pride to the Santa Fe as one of the great railway systems which have adopted this policy of dealing with their train despatchers, and whatever it may cost them to maintain such a policy, they do not look upon it as an expenditure, but as an asset—an investment which yields large and important returns in increased loyalty and devotion to the service on the part of their train despatchers.

Is it not, therefore, worth while for all railroads to adopt some uniform method of dealing with train despatchers and to inaugurate some definite plan which will insure justice and fair treatment? Then this "protection" idea, which seems to be sticking in the minds of so many train despatchers will soon fade away—those fears of arbitrary dismissal will soon be banished and you will have a force of train despatchers contented with their positions, zealous and efficient in the performance of their duties and of unquestionable loyalty to the service.

COMMITTEE REPORTS

A sub-committee of the transportation committee consisting of F. L. Meyers, superintendent, Atchison, Topeka & Santa Fe, Las Vegas, N. M., and E. Richards, superintendent of the St. Louis Southwestern at Pine Bluff, Ark., presented a report on marking and packing of freight, arriving at the conclusion, from a review of the rules issued or recommended by the various associations or departments, that practically every requirement has been covered, but that there remains the essential of securing the enforcement of the rules. The committee, therefore, offered a resolution, which was adopted, recommending that the enforcement of rules covering the marking and packing of freight be placed under the jurisdiction of the weighing and inspection bureaus in different sections of the country and that they employ such additional force as is required to properly conduct the work.

In connection with the report of this committee W. S. Williams, superintendent of the St. Louis division of the Illinois Central, submitted a paper on "Methods of Checking Transportation Expense," describing a plan adopted on the Illinois Central in September, 1914, by which each superintendent makes out in advance a monthly allotment to cover transportation expenses and secures approval for it.

The committee on nominations, in addition to its selection of officers for the ensuing year, presented a supplementary report on "How to Get Train and Enginemen to Take More Interest in Their Work to Protect Themselves and the Company." Summing up, the committee said, the desired results can best be obtained by:

Elimination by careful selection in employing. Elimination of careless, slothful and undesirable employees as opportunity presents itself. Just discipline, tempered with mercy when conditions warrant, and absence of favoritism. Personal contact and cultivation of *esprit du corps* and feeling of personal responsibility for results.

A. E. Boughner, superintendent, Missouri, Kansas & Texas, Sedalia, Mo., chairman of the arbitration committee, reported that no disputes had been referred to it. Two subjects assigned to the committee were discussed in papers by individual members.

W. Smith, assistant superintendent, Indiana Harbor Belt, submitted a paper on "How to Obtain Better Results in Handling Cars in Yards and in Trains by Switchmen and Trainmen," and A. Shepherd, superintendent terminals, Missouri Pacific, Kansas City, submitted a paper urging the establishment of uniform charges for reconsigning freight shipments. This was referred to the transportation committee.

The committee on membership submitted a paper by W. N. Cox, late superintendent of transportation and machinery of the Western Railway of Alabama, on "How We Can Increase the Membership of this Organization, Thereby Making It More Useful," and a paper by F. C. Syze, assistant superintendent, Baltimore & Ohio, Staten Island, N. Y., on "How to Bring About a Better Feeling Between Yard and Train and Enginemen."

The committee on interchange car inspection, M. Marea, general superintendent, St. Louis, Troy & Eastern, chairman, presented resolutions making recommendations to the American Railway Association which were adopted, as follows:

That the American Railway Association again be urged to consider the matter of uniform lettering, it being the recommendation of this association that the sides of cars be lettered at the seal pin as follows: Facing the "B" end of car the left-hand side door to be lettered "L," the door on the opposite side to the right facing the "B" end to be lettered "R."

That the American Railway Association be asked to establish as uniform practice the plan of stenciling all car department information on the ends of cars and only information pertaining to the transportation department on the sides.

That end doors on box car equipment be abolished.

That the American Railway Association be requested to urge upon its members a closer observation of M. C. B. Rule 1, that each railway must give to foreign cars the same care as to lubrication, repairs, etc., as to its own cars.

That a uniform steam hose coupling with a maximum sized port opening be adopted as standard.

That the delivering road shall pay cost of transfer or rearrangement of lading when due to defective equipment unsafe to run according to M. C. B. rules, unless without transfer repairs can be made in 24 hours as per M. C. B. Rule 107.

That the rules adopted by the American Railway Association for the inspection and certification of box cars before loading with freight subject to damage be adopted locally by interested carriers at interchange points and that the plan be extended to provide for a uniform inspection certificate to make the delivering line responsible for the fitness of cars delivered; cars delivered without certificate cards to be considered as having been delivered in error.

The association thereupon recommended that all defects on freight car equipment be declared car owner's, except defects growing out of accidents such as wrecks, collisions, etc., and that a general adjustment committee be appointed to arbitrate car damage claims.

The association also adopted a resolution which had already been sent to the American Railway Association and the Master Car Builders' Association, recommending that there be no changes in the existing M. C. B. rules until October, 1916, to afford an opportunity of fully developing the effect of the rules put into effect last year.

The committee on train rules, J. E. Scott, train despatcher, Gulf, Colorado & Santa Fe, chairman, presented a progress report and was authorized to continue its work of formulating proposed changes in the standard code.

The committee on resolutions, D. S. Farley, superintendent, Atchison, Topeka & Santa Fe, Amarillo, Texas, chairman, presented a report on "Cost Per Day of an Engine and Crew in Road and Yard Service," and a resolution, which was adopted, that it is impracticable to recommend any uniform price per day for the rental of an engine and crew, and that further action be taken by the association to establish a minimum rate of charge for rental of locomotives and that other costs, incidental to wages, supplies, etc., obtain in accordance with the rates of pay and expenses of the owning company. The committee presented a table for eight roads for the month of October, 1914, showing that the cost of operating switch engines 10 hours a day varied from $26.17 to $39.33.

The committee also presented a paper by E. D. Devans, general superintendent of the Buffalo, Rochester & Pittsburgh, on "Efficiency or Discipline Systems," describing the modification of the Brown system adopted by his road in 1912. This aroused some discussion, in which various members described the methods of discipline used on their roads. The consensus of opinion was that the system of record suspensions was greatly superior to the plan of actual suspensions.

At the request of the Cincinnati division a resolution was discussed that a suitable receptacle be placed on the side of each car in which home route cards may be placed. The general opinion was that the card should go with the car, but one or two members thought it should accompany the billing and the subject was referred to the transportation committee.

E. H. Harman, secretary, presented a report showing the rapid increase in membership, which was 12 in 1911, 74 in 1912, 145 in 1913, 266 in 1914 and 501 in 1915.

W. E. Williams, general manager of the Missouri, Kansas & Texas, delivered an address on "The Railroad as a Public Servant."

E. W. Camp, attorney for California of the Atchison, Topeka & Santa Fe Coast lines, presented a paper on "The Railroad and the Hobo."

The following were elected officers for the ensuing year: President, Charles Burlingame, superintendent Wiggins Ferry Company, St. Louis (re-elected); first vice-president, W. S. Williams, superintendent Illinois Central, Carbondale, Ill.; second vice-president, C. E. Rickey, superintendent terminals Queen & Crescent, Cincinnati, Ohio. Executive committee: A. G. Smart, superintendent Chicago, Burlington & Quincy, Aurora, Ill.; B. B. Tolson, superintendent Mobile & Ohio, Murphysboro, Ill.; O. F. Clark, superintendent of transportation Grand Trunk, Chicago, Ill.; J. E. Taussig, general superintendent Texas & Pacific, Dallas, Tex., and H. R. Saunders, superintendent Chicago, Rock Island & Pacific, Kansas City, Mo.

Members of the association and their families went to the convention in a special train by courtesy of the Atchison, Topeka & Santa Fe and the Southern Pacific. Saturday, August 21, was Railroad Superintendents' Day at the Panama-Pacific International Exposition and the members were entertained at the exposition grounds. On August 22 the party was taken for a trip on the bay for the purpose of inspecting the docks and various points of interest, followed by a trip to Mt. Tamalpais via the Northwestern Pacific and the Mill Valley & Mt. Tamalpais.

Building Concrete Caissons in the Platte River

The Burlington Used This Construction at Ashland, Neb., and Also a New Type of Reinforced Concrete Pile

By J. H. Merriam,

Resident Engineer, Chicago, Burlington & Quincy, Kansas City, Mo.

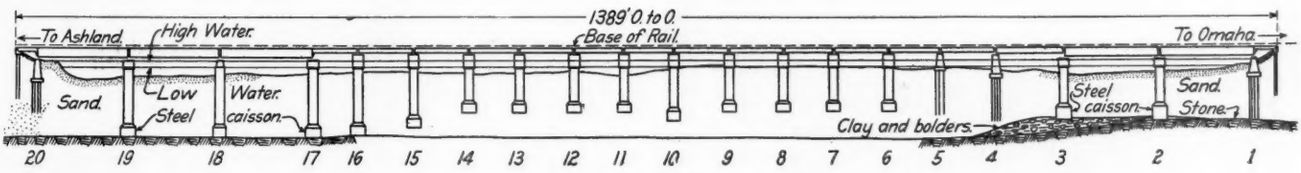
The Chicago, Burlington & Quincy has recently completed a permanent bridge over the Platte river on the Chicago-Denver main line, near Ashland, Neb. This is the first permanent structure of its kind on the lower Platte river, and consists of deck plate girder spans varying from 50 to 105 ft. in length and supported by 20 concrete piers of various types. The most satisfactory design from the construction standpoint was the cylindrical caisson, with a square base, which was sunk by means of open dredging.

Because of the shallow water in the Platte river it was possible to build a diversion dam of brush and rock above the proposed locations of each pier, in this manner obtaining still water in which a wooden cofferdam measuring 24 ft. square and 4 to 6 ft. in depth was placed and anchored in position. By filling this with sand to the surface of the water, a bar was formed on which forms for the bottom section of the caisson were placed and filled with concrete. The outer sides of this section are vertical for a distance of 10 ft. and then converge to form a cylinder 11 ft. in diameter at a height of 12 ft. above the cutting edge. This cylinder was extended upward in 13-ft. sections as sinking progressed. Wooden forms lined with galvanized iron were used for both the inside and outside, and were constructed to permit their removal and use on other piers.

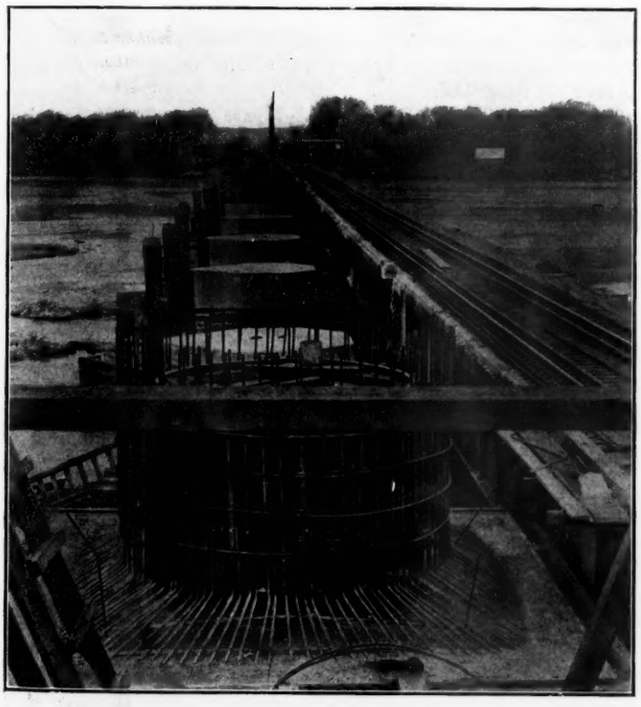
The inside of the base is pyramidal in shape, converging into a cylinder 8 ft. in diameter at a height of 9 ft. above the cutting edge and forming an open well 8 ft. in diameter. After removing the forms, excavation was carried on through the open well by means of a clam shell bucket and a stiff-leg derrick or by the use of a track derrick with either a clam shell or an orange-peel bucket.

The time required to sink these caissons was materially influenced by various obstructions encountered, some of which required the services of a diver, who was lowered inside of the caisson to remove logs, rocks and other obstacles. The caissons were sunk an average of 8 ft. per 10-hour day, the best time made being 20 ft. in 20 hours' continuous dredging. When it was necessary to start dredging after it had been discontinued over night or for a period of 5 or 6 hours, considerable excavation was necessary to start the movement of the caisson. The use of dynamite exploded in the excavated pit in the bottom of the caisson after each 5 to 8 cu. yd. of sand had been removed was found to assist materially in the sinking. A drop of from 2 to 10 in. was accomplished at times in this manner, using a ½-lb. stick of 40 per cent. dynamite. The use of dynamite also reduced the amount of excavation necessary for sinking as these shots kept the cutting edges well down in the sand and prevented the sand from running in from the outside.

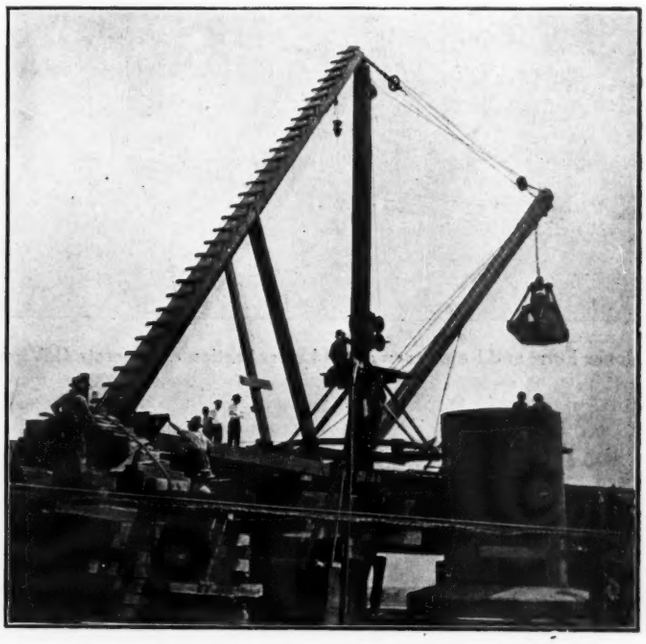
Very little trouble was experienced in keeping these caissons in a vertical position except when some obstruction was encoun-



General Elevation of the Platte River Bridge



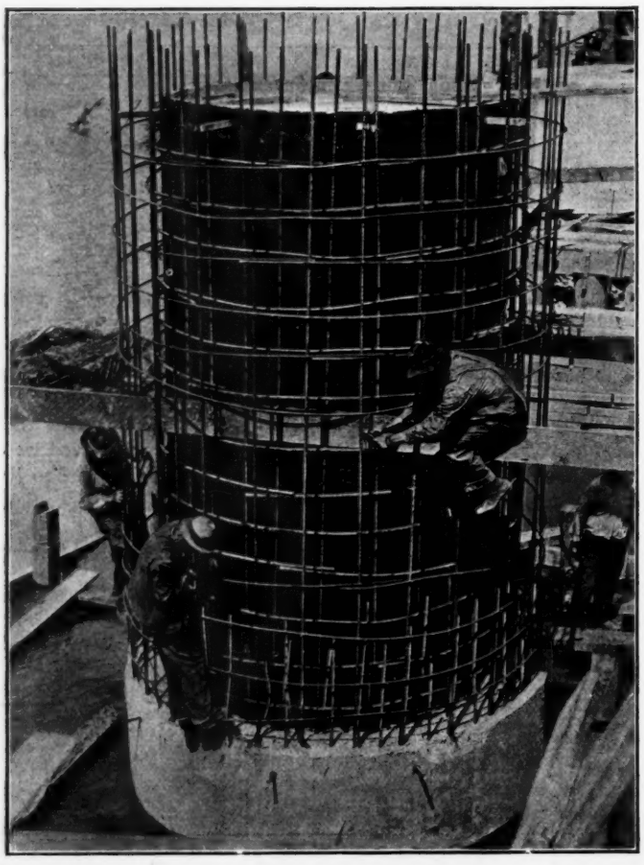
Looking East from Pier No. 11, Pier No. 10 in Foreground Showing Reinforcement of Bottom Section



Excavating Inside of Steel Caisson by Use of Stiff-Leg Derrick and Clam Shell

tered under one side of the cutting edge. When this happened it was sometimes necessary to place a shore or brace, usually a 12-in. by 12-in. timber, against the low side, and as sinking progressed this brace would force the caisson back to its proper position. Quite often it was possible to keep the caissons plumb by regulating the excavation in the bottom.

In order to found the cutting edge on bed rock the last 3 or 4 ft. of sinking was accomplished by lowering the water on the inside. The resultant reduction in the pressure caused the sand to be forced in under the cutting edge, at the same time permitting the caisson to settle by its own weight to within a few inches of bed rock. Sand around the cutting edges which could not be removed was thoroughly grouted with Portland cement. The bottom was then sealed with a 5-ft. course of 1:2:4 concrete placed through the water in a ¾-yd. drop-bottom bucket. After this had set for 12 hours a second course was placed, making a

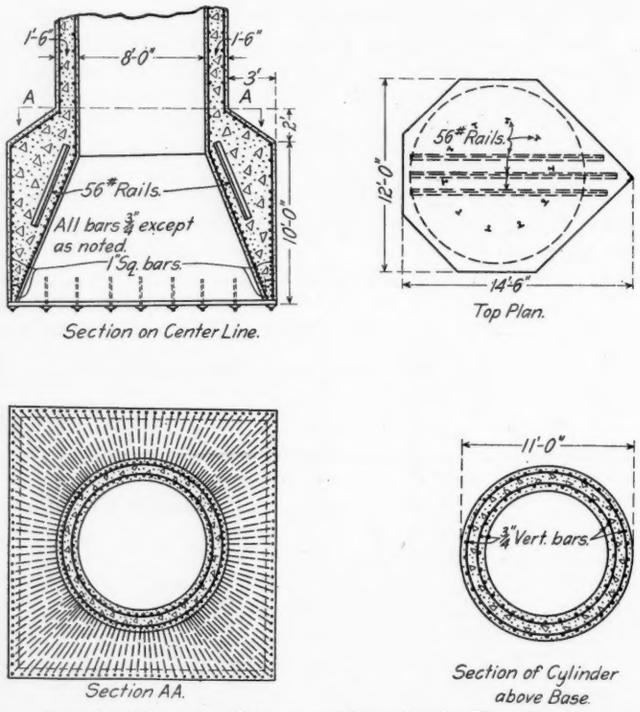


Inner Form and Reinforcement of Upper Section of Concrete Caisson

total of 10 to 14 ft. of sealing material. This was then allowed to set for 24 hours, when the caisson was unwatered and the filling of concrete was carried on in the dry. A 1:3:6 mix was used to fill the core above the sealing course. Piers were then completed to the proper height with a reinforced concrete cap of octagonal shape, with the upstream side carried out to a point, to form an icebreaker.

Piers 6 to 16 inclusive, except pier 11, were built in this manner. At pier 11 the water was too deep to admit using the diversion dams and it was necessary to erect forms, and concrete the bottom section of this caisson on a suspended platform. This was accomplished by spanning the location of the new pier with two 60-ft. girders placed 13 ft. center to center on pony bents built on old bridge seats. Crosswise of these girders two pairs of smaller girders were placed from which a platform was suspended by means of six 2-in. lowering screws 24 ft. long. Forms were erected on this platform and concrete was placed to a sufficient depth properly to embed and anchor six eye-bars to which six 2½-in. lowering screws were attached. This method was followed to aid in supporting the load as the concreting progressed.

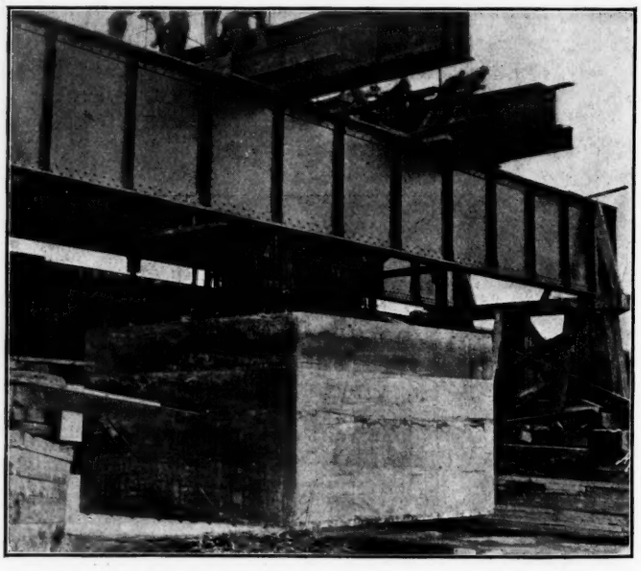
After the forms were removed the six 2-in. screws were released and the platform was removed from under the caisson, throwing the entire weight of approximately 175 tons on the six 2½-in. screws. The caisson was then lowered to the bed of the



Details of Concrete Caisson and Caps for the Piers 6 to 16

stream by means of these screws operated with wrenches on top of the cross girders. After landing on the bed of the stream the screws were moved and sinking was carried on, as with the piers previously described.

Caissons for piers 2, 3, 17 and 19 are of steel construction, cylindrical in shape, and measure 18 ft. in diameter at the base.

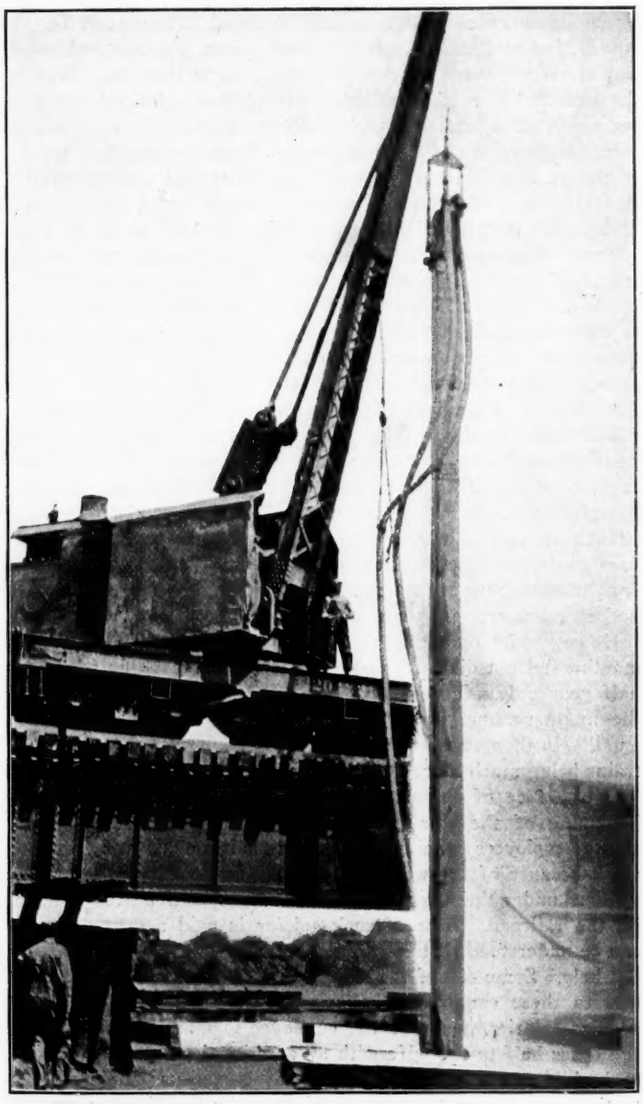


Pier No. 11. Lowering Bottom Section of Caisson by Means of Screws

They have vertical sides to a height of 16 ft., where they converge to a cylinder 11 ft. in diameter. This steel shell was lined with 18 in. of concrete, leaving an 8-ft. well through which a dredge bucket was operated. The bottom sections of these caissons were assembled and riveted together on the bank and were then carried out and set in place by a locomotive crane. Addi-

tional sections were added in 20 ft. lengths. This type of caisson was concrete reinforced with 15-in. I-beams placed vertically in the 18-in. lining wall. These caissons were used for deep foundations, although the concrete type of caisson was later found to be equally satisfactory. These piers were finished to proper height with an octagonal cap similar to those described previously except that icebreakers were designed differently in order to afford greater protection because these piers are somewhat lower than those built in midstream.

Piers 1, 4 and 5 are built on Bignell concrete piles; piers 1 and 4 resting on 36 piles each, and pier 5 on 21 piles, sunk to depths of 57, 62 and 50 ft., respectively, below low water. The tops of

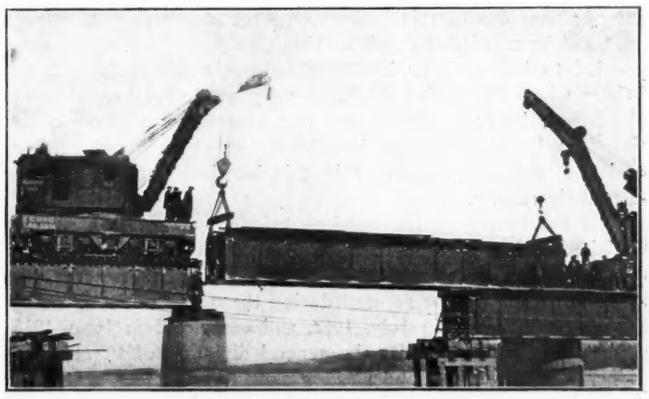


The Bignell Concrete Pile. The Spray Is Due to Discharge from the Water Outlets in the Sides of the Pile

these piles were embedded in a concrete cap on which the piers were built in the ordinary manner. These Bignell concrete piles are a new type and these are the first of their kind to be used. They are 16 in. square, 50 ft. long, weigh 12,300 lb. each, and are made of reinforced concrete. Each pile has a 4-in. pipe through its entire length, reducing to 2 in. at the bottom. This pipe is tapped at intervals of 1½, 2, 4, 8 and 12 ft. from the bottom or point of the pile by ¾, ½ and ⅜-in. pipes, which are fitted with elbows turned up on the faces of the pile, thus furnishing 5 openings on each side. In addition a 2-in. pipe extends through the 4-in. pipe and fits into the reducer at the point, the 2-in. pipe being fitted with a brass nozzle to reduce the opening to 1⅛ in.

Water is applied at the top of the pile through two 3½-in. hose; one, with water at a pressure of 100 to 150 lb. per sq. in., was connected to the 4-in. pipe and the other, with water at a pressure of 250 to 300 lb., was connected to the 2-in. pipe. The high pressure was used at the point of the pile through the inner pipe, to loosen and displace sand in front of the pile in sinking. The lower pressure in the 4-in. pipe supplied the side openings with enough water to keep the sand loose and to give it an upward movement to overcome the side friction. The piles sank by their own weight. The high pressure water was supplied by one Knowles Special 20 in. by 8 in. by 18 in. duplex pot valve pump through 800 ft. of 6-in. wrought iron pipe and the low pressure water was supplied by one Dean Brothers 16 in. by 8 in. by 18 in. duplex pump, through an 8-in. pipe of the same length.

The east bank block is also supported on 50-ft. Bignell concrete piles, 12 of which were sunk to a depth of 35 ft. below low water and were capped with concrete. They support the east end of a 25-ft. slab, weighing 80 tons. Two of these slabs are used, one at each end of the bridge. They were manufactured at the Burlington concrete plant at Havelock, Neb., each slab being made in two parts, measuring 3 ft. deep, 7 ft. wide and 25 ft. long. The west bank block is similar to the east one, except that it is supported



Moving Girder Spans from Temporary Piers to New Piers

by twelve 30-ft., 14-in. by 14-in. solid concrete piles. Pier 20 is similar to pier 1, except that foundation piles are white oak instead of concrete.

Pier 18, which was the last pier to be completed, presented many difficult problems, owing to the nature of obstructions in the river bed through which it was sunk. A cofferdam 19 ft. square, was planned, but before driving a Davis calyx core drill was used to drill holes 18 in. apart on the proposed line of the cofferdam to penetrate through the obstructions. Each hole was blasted with 5 to 15 lbs. of 60 per cent. dynamite and sheet piling was then driven with but little trouble. By the use of dynamite, divers, dredge buckets and sand pumps, this cofferdam was finally cleaned out and the obstructions were removed. It was then filled to the surface of the water with sand on which forms were erected for a concrete caisson similar to those used at piers 6 to 16. Thereafter work proceeded without interruption until the pier was completed.

Three new spans were placed at each end of the new bridge. The remainder of the spans were obtained from the old bridge, and it was necessary to divert traffic for 34 hours while they were shifted from the old to the new piers. This was accomplished by the use of one 75-ton and one 100-ton derrick, which picked up each entire span with ties and rails in place, raised it 7 ft., moved it longitudinally 25 ft. and swung it to place on the new piers 14 ft. out. These three movements required from 20 to 45 min. for each span. Thirteen spans were moved in this manner, during the worst storm of the winter, the high wind and heavy snow greatly retarding the work. The actual time for changing all the spans was 10½ hours.

The entire bridge is covered with a reinforced concrete ballast deck. The deck slabs were pre-molded and placed on the bridge in 5-ft. sections. Each slab measures 14 ft. wide by 10½ in.

thick, and is provided with two 1¾-in. drain holes. Joints between slab sections are calked with oakum, tar and cement. Expansion joints at the ends of each span are covered with apron plates.

Fascine type willow mattresses were constructed to protect the new fill at the east end of the bridge and to maintain a channel under the long spans at this point. A peculiar characteristic of the Platte river is that it has invariably, adjoining one bank, a main channel and against the other bank a secondary channel. These channels are from ¼ to ½ mile apart, with stretches of extremely shallow water and a sand bar between. The banks are low and overflow only at times of ice gorges in the early spring. The fall is great and the current rapid and during the high water the amount of silt carried is considerable. As might be expected in a stream of so great a fall, the sand is rather heavy, although it is readily scoured when the stream is confined. For this reason it has been found the better practice to narrow the stream to as great an extent as prudence will permit, thereby causing the channel to scour and provide wider and deeper openings at the time of the spring break-up for the passage of the very heavy ice which often forms, and to reduce the width of the sand bars between the channels to a minimum. These characteristics determined the design of this bridge in a large measure.

It will be noted that on either side very deep foundations were carried to bed rock or hard pan, while in the middle of the bridge, where the depth would be the greatest in ordinary streams, the foundations are carried only to a stratum of coarse sand or fine gravel. This material has demonstrated its bearing power and the probability of scour in this location is thought to be extremely remote.

The narrowing of the original bridge by about 300 ft., as anticipated, has resulted in slightly increasing the depth of the channel in low water and it is believed that a further increase in channel depths will be secured during the next floods.

Work was begun in July, 1912, and completed in June, 1915. It has been handled under the general direction of C. H. Cartlidge, bridge engineer, and C. R. Fickes, assistant engineer, with the writer as resident engineer on the ground.

ACCURATE FREIGHT BILLING

The method of making out way bills with machines on a piecework basis employed at the Chicago, Rock Island & Pacific freight station at Burr Oak, Chicago, was described in the *Railway Age Gazette* of May 14, page 1008. One unusual feature of the results secured at this point is the high degree of accuracy attained. Since the publication of this article the following information has become available concerning the record made by one of the men employed in making way bills. From January 1 to August 1, this man made an average of one error for each 357 tallies billed. In July his record averaged one mistake in 500. Out of 67,733 tallies billed in one period, 190 errors were made. This is a record for errors of 0.0028.

Under the system employed any mistakes made in the billing of any tally, including the advance or prepaid charges, commodity items, destinations, car references, block loading numbers, consignees, consignors, weights and special notations, are charges against the billers. Any man making a record of 0.005 is penalized two points for all errors made, while any man making a record better than 0.005 is not penalized. In this way the careful biller is encouraged, while the careless one is penalized. It is believed that the record referred to above is one of the best which has ever been made in regular routine work.

THE RAILWAYS OF THE BELGIAN CONGO.—The final link in the railways and river line of communication between the mouth of the Congo and Lake Tanganyika has just been completed. Now ocean-going vessels can go up as far as Matadi, 85 miles from the mouth of the river; thence a railway of 260 miles runs to Stanley Pool; from there the river is navigable again to Stanleyville, a distance of 1,000 miles, and so on, the river being used wherever possible.—*The Engineer, London.*

HOW A DESTROYED FRENCH RAILROAD HELPS ITS EMPLOYEES

BY WALTER S. HIATT.*

The whole-hearted sacrifices made by the entire French nation in the present war are astonishing, and not the least astonishing of these sacrifices is the financial one made by the railroads on behalf of their employees. If one did not understand the spirit of unity and brotherhood awake today in France, it might be believed that in time of war the railroads were preparing for peace, cementing now the goodwill that should exist between employer and employee.

The Eastern Railroad (chemin de fer de l'Est), with the single exception of the Northern Railroad (chemin de fer du Nord), has and still is suffering more severe physical and financial disaster because of the German invasion than any other of the French lines. A good half of the 500-mile line of trenches, beginning at Laon, running south to Rheims, and thence to Verdun, Nancy, and Belfort, is in territory adjacent to the tracks of the Eastern Railroad. The latter, in consequence, is seriously crippled. On half of its system it can do no business at all, and that half is the part which brought in its greatest revenue because of its connections with the Belgian and German railroads and because of the mines and manufactures of the north of France. It will be unable to rebuild its burnt stations, replace its dynamited bridges, repair the road bed and re-establish its service until many months after the cessation of hostilities. On a rough count nearly 300 of its stations lie to the north of the French lines; it has had 49 steel and stone bridges destroyed.

The traffic receipts of the company during 1914, these figures taking in only the first six months of the war, fell off 25 per cent., or $15,000,000, counting the $6,500,000 paid as transport charges by the war department. Unlike four of the other five French railroads, it has sustained not only this vast physical damage but it has also not had any considerable passenger or freight receipts to draw from, except during last August, when it had more passengers than it could well handle.

However, its operating expenses, normally $6,000,000 for six months, did not diminish in proportion, being for this particular half year only a little over $1,000,000 less than usual. One of the many reasons for this is found in the increased expense entailed in the operation of military trains, the operation of these trains being much more complex than that of the ordinary trains.

In the face of these conditions, this railroad from the very beginning of the war has done its best to provide for those of its employees who have suffered and are suffering loss of work because of the war, or who have been mobilized as active soldiers under the flag when there was no positive need of them on the railroad. As a French soldier is paid a cent a day, it can be understood that his family or dependents cannot live without help. Some 400 of the railroad's employees are now soldiers and to these employees the company is paying one-half their regular salaries. In case the employee is married, it is paying the other half to the wife with an additional ten cents a day for each child in the family. The railway is paying regular salaries to those employees thrown out of work by the German occupation. It is also paying additional sums to those employees who have been given work away from their regular stations.

Further, this railroad at its annual meeting voted the usual annual sum of nearly $5,000,000 for the benefit of its employees, and even this does not include pensions for accidents, salaries during vacations (each employee is allowed 52 days of vacation each year), bonuses for meritorious service, or the free fares given both to employees and their families. Of this total $3,250,000 goes into a pension fund for retired employees, their widows and orphans. The rest is divided among the many established branches of the company's paternal or welfare work. Among these branches are funds for funerals, for medicine, for employees with large families, for child birth expenses, for orphan children, for loans without interest, and other purposes.

* Our special European correspondent.

The Railroad Master Blacksmiths' Convention

Flue Welding, Steel Treatment, Piecework, Reclaiming Scrap, Spring Making, Drop Forgings, Electric Welding.

The twenty-third annual convention of the International Railroad Master Blacksmiths' Association was held at the Hotel Walton, Philadelphia, Pa., August 17-19. The opening exercises were briefly reported in the *Railway Age Gazette* of August 20, page 361.

ADDRESS BY C. E. CHAMBERS

C. E. Chambers, superintendent motive power of the Central Railroad of New Jersey, addressed the convention in part as follows:

No part of the railroad organization is more interesting to me than the blacksmith department; from the time I was a boy on an Illinois farm I have never ceased to be keenly interested in that work. No part of our great railroad organization has undergone more revision than the smith shop. True, many things are done nearly the same as in former years; flue welding still resembles the practice of many years back, excepting slight changes in scarfing and preparation. But spring making and repairing has been simplified and perfected by improved devices for assembling and banding, so that much of the manual labor has been reduced, and a much better spring is produced. The oil, acetylene, electric and thermit welding processes have entirely revamped some of our smith shop practices. Where formerly it was necessary to always remove an engine frame and take it to the smith shop for repairs, such a practice now would be almost an impossibility by reason of the extreme size and many complications of construction, which would not only increase the cost of repairs, but would hold the locomotive out of service very much longer. Quite frequently we can make a weld and return to service the same, or next day, what with our old system would require from 7 to 10 days, or possibly longer.

One of your subjects for consideration at this convention, that of Heat Treatment of Metals, is deserving of careful study; not only is it desirable for new material, but annealing adds much to the life of many parts of locomotives and cars by periodically following up this practice while in service. No subject to be considered at this convention should receive more careful attention than reclaiming scrap. Everything must in time find its way to the scrap bin, but should not until it has served its last purpose. But there is a dividing line beyond which it is more economical to cast aside the old and use the new.

Your conventions, as all others, are returning to us the best service that is in man. You are always able to go back to your home road with some new idea, or new process, which is just a little better or more economical than your former practice.

FLUE WELDING

E. J. Haskins (New York Central) stated that 400 modern engines were maintained at the Elkhart, Ind., shops, and that the flue welding and wedging was handled in the blacksmith shop. He gave in detail the procedure of handling the tubes from the boiler through the shop and back to the boiler again. About five men are used in the tube department to handle from 6,000 to 8,000 tubes per month of nine working hours per day. All safe ends are made from new stock and no difficulty has been experienced in successfully welding steel on steel, or steel on iron. When bringing the tubes to a welding heat great care should be exercised to heat uniformly and not too rapidly, thus not overheating the safe ends and making them brittle. Superheater flues and the two-inch tubes are electrically welded in the back tube sheets and when so welded are expected to last three years. Several other members in referring to this subject stated that all flue welding on the roads with which they were connected was handled in the boiler shop.

CARBON AND HIGH SPEED STEEL

H. W. Loughridge (Pittsburgh & Lake Erie) called attention to the need of literature on the subject of heat treatment of high carbon and high speed steel couched in plain practical terms which would be of use to the blacksmith. From the fact that most carbon steel has a very limited range of treatment more difficulty is encountered in handling it than in handling the high speed steels, which are less sensitive and less easily ruined in forging and hardening. Owing to the growing use of high speed steels the tendency is to heat carbon steels too high because high temperatures are required when handling the high speed steels. The majority of failures in carbon steel may be traced to excessive temperatures either in the forging, annealing or hardening operations. A temperature of 1,400 deg. F. to 1,600 deg. F. is sufficient for forging and hardening most carbon steels, while high speed steels require from 1,800 deg. F. to 2,300 deg. F. Where such instructions are available it is best at all times to follow the instructions of the steel makers.

In tempering taps and dies at the McKees Rocks, Pa., shops of the Pittsburgh & Lake Erie, two muffle furnaces are in constant use. One is kept at 1,400 deg. to 1,450 deg. F., while the other is kept between 2,000 deg. and 2,200 deg. F. Carbon steel taps and dies are hardened in the low temperature furnace and are cooled in clean water at about 60 deg. F., being then drawn in oil at 450 deg. to 500 deg. F. High speed steel is first preheated in the low temperature furnace and then put into the high temperature furnace and held at about 1,900 deg. to 2,000 deg. F., then quenched in oil and drawn to 500 deg. or 600 deg. F.

In the discussion the necessity for evenly heating all hardening steels was emphasized. Although care on the part of the blacksmith is necessary to prevent warping of tools in hardening and ruining of metal, it was the general opinion that many failures are charged to him for which he is not responsible. This is because he does not have sufficient information as to the quality of the steel and the treatment it requires.

MAKING AND REPAIRING FROGS AND CROSSINGS

F. A. Watts (Delaware, Lackawanna & Western) described at some length the methods used in the frog and switch shop of the Lackawanna at Dover, N. J., where a large amount of work is handled. The shop is divided into three departments; a blacksmith shop where all forging, plate work, rod work and switch stand shafts are repaired, the planing and drilling room, and the erecting floor where the work is assembled, bolted up, riveted and finished ready for shipment. The plan is so arranged that a minimum amount of handling is required from the rail pile to the finished frog and switch storage and special facilities for handling are installed. A 16-ft. 6-in. switch of 101-lb. rails can be turned out at a labor cost of approximately $4.00. The cost of cutting up old stock, handling of scrap material to and from the hammer and placing it in piles ready for shipment never exceeds 20 cents per frog. All material fit for future use or which can be reclaimed is saved and again placed in service at a net saving to the company of $25,000 per year more than would be received if the material were used for scrap.

PIECEWORK

P. T. Lavender (Norfolk & Western) laid stress on the value of the piecework system in bringing out the best in a man, teaching him how to handle himself efficiently and making him self-reliant. Piecework prices are established on the Norfolk & Western on all standard work which will be ordered in sufficient quantities. Dies and formers are first made for the drop hammer, the forging machine or bulldozer, and then tried out to see that they finish the work in accordance with blue prints. The workman and the foreman then agree on the price to be paid.

A. W. Ackley (Delaware, Lackawanna & Western) spoke of the erroneous ideas which some foremen hold that piecework is simply a means of increasing wages and that they are at liberty to alter the prices in a way which shows favoritism. He emphasized the necessity of promptly adjusting the price when new tools or new methods of turning out a certain piece of work have been devised. The blacksmith foreman should see personally all work coming to the shop and be in a position to say just what work is necessary in each case, otherwise where several prices obtain for certain classes of repair work, depending on the extent of the repairs, unnecessary work will be done and the highest price will prevail. In setting prices care should be taken to see that work is being performed in accordance with the methods given in the instructions, otherwise too much time may be consumed and an unduly high price established.

J. H. Daltry (Erie) said that after a man has worked on piecework he does not want to return to day work. Very little work has to be done over, since under such conditions it must be done on the workman's own time, thereby creating a tendency toward greater care in the future.

RECLAIMING SCRAP

Thomas M. Ross (Buffalo, Rochester & Pittsburgh) stated that old arch bars, drawhead pockets, truss rods, etc., were being rerolled into different sizes of round iron, which is then used in the manufacture of bolts, grab irons, etc. Old steel crank pins are used for making wrenches and small forgings, and coil springs are extensively used in the manufacture of car repair drift pins and pinch bars. Car repairers, hammers and coal picks are made from tire steel, but it is not suitable for tools that must withstand blows from sledges, owing to the tendency to break off chunks.

J. Tootell (Chicago & North Western) said that the North Western has been sorting out scrap for about 20 years, each year going into the practice a little more extensively. About five or six years ago the reclaiming of everything having a usable value was taken up and two shops built. From 20 to 25 cars of scrap are now unloaded each day, about five old cars are burned and seven broken up each day. All scrap is sorted as it is unloaded and is then distributed to the various shops where the reclaiming is to be done.

C. L. Gay (Atlantic Coast Line) stated that all round iron used on the Atlantic Coast Line from ½ in. to 1 in. is provided from rerolled material. A large quantity of manufactured material which has been used and thrown on the scrap pile is also sorted out and straightened, and then returned to service. Mr. Gay presented statements showing the output and the saving effected by the rerolling mill at the South Rocky Mount, N. C., shops of the Atlantic Coast Line. On an output of 51,803 lb. of rerolled iron from ½ in. to 1 in. in diameter, which was reclaimed in the month of December, a net saving of $14.98 was effected. This covered only 11 days during which the rolls were in operation.

SPRING MAKING

Thomas E. Williams (Chicago & North Western) described at some length the process of spring making as carried out at the Chicago shops. He stated that so far as possible all spring work for a system should be concentrated at the main shop of the railroad because spring work should under no conditions be attempted without proper machinery. As a rule it is not advisable to install such machinery at outlying points on account of the small amount of work to be done. When sufficient spring work is handled to justify the installation and operation of proper spring making machinery, expansion is very easily taken care of by merely adding to the force. At the Chicago shops four machines are required to prepare the steel for use and these are operated by one man and two helpers. Should the amount of work increase the capacity of the plant could be increased without additional equipment. Mr. Williams stated that all spring bands on the North Western are machine made, the material being bent into a U-shape on a bulldozer and welded in a forging machine. No broken bands are repaired, as the machine bands are so cheap as to make this practice inadvisable. The bands are applied to the spring at a temperature of about 1,850 deg. and squeezed into place in a press, where they are held until cool.

C. V. Landrum (Nashville, Chattanooga & St. Louis) found that springs rolled with a convex roller on the bottom were cupped so that when loaded the edges of the plates were in tension and the centers in compression. By reversing these conditions and placing the edges of the plates in compression he stated that the number of failures had been considerably reduced. The plates are rolled and hardened at the same heat and another hot plate is then rolled on the adjoining cool plate, which is all the drawing the plates get. The quenching is done in crude oil, cooled by an air blast. Mr. Landrum emphasized the necessity of always getting the same grade of steel and believes that if this were possible spring failures could be reduced to a large extent. When different grades of steel are mixed together, calling for different treatment, the blacksmith cannot tell one grade from the other and some of the steel of necessity receives the wrong treatment.

George P. White (Missouri, Kansas & Texas) described the process used on the Missouri, Kansas & Texas, stating that all springs are repaired on a store department shop order. A stock of springs is thereby kept on hand and those repaired are not necessarily returned to the engine from which they were taken. They go through the shop in lots of not less than six of each class. After the springs are entirely fitted up they are turned over to a helper to flash the temper. This is done in a muffle chamber at a much lower temperature than the fitting furnace, thereby eliminating a large number of broken plates caused by the edges of the steel being drawn while the center remains hard. Less trouble is also experienced from the springs not standing up under the load due to the temper being drawn too far.

In the discussion the need of proper appliances on the manufacture of springs was emphasized and the question of tapering the ends of the leaves received considerable attention. This practice has been abandoned on the Pennsylvania and the Lehigh Valley, but many of the members still believe that tapering is justified.

CASE HARDENING

C. V. Landrum (Nashville, Chattanooga & St. Louis) gave an outline of the practice which he follows in case hardening. The old method is used, the work being packed in a mixture of bone meal, old leather, pulverized charcoal and a sprinkling of prussiate of potash. A drum, 12 in. in diameter, is used for packing the work, the length varying from two to four feet, depending on the amount of material to be hardened. A slight flange is turned on the end of the drum which is placed on end and a piece of ¼ in. or ⅜ in. iron cut to fit is dropped into it. About two inches of fire clay is placed on top of this and the packing is done in the usual manner. Space is left at the top for two or three inches of fire clay which is held in place by another ¼ in. or ⅜ in. iron plate, held by a bolt passing through holes in the drum. This drum is then placed in the furnace and a temperature of 1,600 deg. to 1,700 deg. F. is maintained for about eight hours, the carbonized case under this treatment being about ⅛ in. deep. For quick work, such as is required in a roundhouse job, a mixture of ¾ lb. of prussiate of potash to one gallon of pulverized charcoal is used, the work being packed in a pipe just large enough to accommodate it and kept at the highest practicable temperature for a period of 1½ hrs. Under this treatment a penetration of carbonization of 1/16 in. will be effected.

J. W. McDonald (Pennsylvania Railroad) presented photographs of several forgings, and of the dies and blocks used in their manufacture which were formed under the steam hammer. Many forgings can be successfully made in this manner, some of them at a cost nearly as low as would result from the use of a drop hammer, but usually at a somewhat higher cost. Dies for this purpose are usually cup blocks, which are closed by top and bottom blocks, which are driven into position by the

ram of the steam hammer. After this operation the only additional labor is that required to trim off the flash and this may often be done by placing the forgings in the flue rattler for a few hours. It is necessary in forming work in cup dies that just the right weight of material be used, otherwise the tools are subjected to a severe strain caused by the surplus stock finding its way between the cup and the plunger or block. The cup blocks are made from billet steel or scrap axle steel, while the top and bottom blocks are made of tool steel.

In the discussion, H. E. Gamble stated that the drop hammers at the Juniata, Pa., shops of the Pennsylvania Railroad were being run night and day. The largest dies in use in this shop measure 12 in. by 30 in. by 36 in. and weigh 3,560 lb. each, being made of vanadium cast steel. Difficulty is still experienced, due to the breaking of hammer rods and dies, heat cracks appearing in the latter because of continuous use.

ELECTRIC WELDING

Joseph Grine (New York Central) stated that in the opinion of the committee on electric welding, operators of this equipment in locomotive shops should be placed under the supervision of the blacksmith foreman, because of his knowledge of the properties of and the effect of heat on iron and steel. Owing to the specialized nature of this work it can be handled better by one man with access to all departments than by each department separately, thus facilitating standardization of welding practice. Because he handles work from all departments the blacksmith foreman is in an advantageous position to balance the welding work in the various departments. Blacksmith foremen were criticised for trying to avoid or shirk this responsibility.

Welding machines are used at the Depew, N. Y., shops on a large number of operations and it is conservatively estimated that the annual saving is approximately $30,000 at that shop alone. A list of some of the operations handled by the electric welder is as follows: Broken frames, cracked cylinders; front deck castings; fireboxes; tubes welded in back tube sheet; sharp flanges filled in on tires; flat spots filled in on tires; mud rings welded and reinforced. The method of welding frames was described in the report. A plate is secured to the bottom of the rail after the crack has been cut out to an angle of 45 deg. on both sides, upon which the weld is built. After completely filling in the V's the weld is reinforced by welding on a layer of ⅝ in. round bars, the ends of which extend beyond the filled-in material. Considerable data was presented relative to the strength of electric welds in boiler plates, the efficiency of the welds ranging from 82 to 99 per cent. of the strength of the unwelded material.

C. A. Slenker (Long Island) described a method of electrode welding, using a "weltrode," which is a metallic rod covered with slag. With this type of electrode it is claimed to be unnecesary for the operator to carefully hold the rod, as the slag on the end rests on the work and excludes the air from the molten metal. As the wire melts away the slag is also melted. After the application of each layer of metal the slag forming on the surface is broken away with a scaling hammer and the surface is cleaned with a wire brush, leaving the metal clean and bright for the application of the next layer. This system is controlled by the Quasi-Arc Weltrode Company, Newark, N. J.

P. T. Lavender (Norfolk & Western) said that the metal electrode method was employed at the Roanoke shops, a softer weld being produced than with the carbon electrode and separate filling piece, since there is no tendency for carbon to be carried into the weld. The action of the arc in carrying the metal from the electrode to the work makes it possible to weld on a vertical wall or overhead, this method being largely used in overhead repairs in fireboxes and welding tubes in locomotive boilers. Mr. Lavender presented the results of a test made at the Roanoke shops to determine the relative tensile strength of coke butt welded, electrically butt welded and new unwelded boiler tubes. The electrically welded tubes showed an average efficiency of 90.6 per cent., the minimum efficiency out of six specimens being 80 per cent. The average efficiency of the coke welded tubes was 87 2/3 per cent.

The discussion brought out the fact that lamination in electric welds may be avoided by applying each successive layer of metal against the direction of application of the preceding layer. Trouble has been experienced by some of the members in welding tubes into back tube sheets from the cracking of the bridges. Troubles of this nature are overcome in some cases by skipping about the sheet to points a considerable distance apart, thus tending to equalize the expansion and giving a better opportunity for the sheet to cool.

HEAT TREATMENT OF METAL

No papers were presented on this subject, but it brought forth considerable discussion. Some members doubted the advisability of heat treating large parts under present conditions. The difficulties of handling heat treated parts in the repair shop were touched on. Where heat treated side rods are brought into the shop to be slightly lengthened or shortened the heating of the material to do this work destroys the effect of the heat treatment and unless it is again subjected to the heat treating process it will return to service without its original properties and the advantages of the heat treatment are lost.

OTHER BUSINESS

The following officers were elected for the next year: President, T. E. Williams, Bettendorf Company; first vice-president, W. C. Scofield, Illinois Central; second vice-president, John Carruthers, Duluth, Missabe & Northern; secretary-treasurer, A. L. Woodworth, Cincinnati, Hamilton & Dayton; assistant secretary-treasurer, George B. White, Missouri, Kansas & Texas; chemist, G. H. Williams, Boston, Mass. Chicago received the largest number of votes as the place of meeting for the next convention.

GOVERNMENT MONEY TO GO BY MAIL AT EXPENSE OF RAILROADS

The treasury department, acting in concert with the post office department, has decided that all public moneys transported between the treasury, the sub-treasuries and the banks shall be carried by registered mail, instead of by express. The express companies have hitherto earned about $500,000 yearly by the performance of this service, and approximately half of this sum or $250,000 annually, was paid by them to the railroad companies for the facilities of transportation. Both the railroads and express companies will be deprived of these revenues, but the railroads, unlike the express companies, will not be relieved of the service, since the facilities of the railroads must be used as before. Setting forth this injustice, the committee on railway mail pay (Ralph Peters, New York City, Chairman) has issued a circular, which says:

For carrying the public moneys and securities as mail the railroads will receive no compensation whatever until the government again weighs the mails to ascertain the tonnage being carried. This is done only once in four years. Even then the rates the railroads will receive for transporting the funds will be so utterly inadequate, by comparison with the unusual value of such shipments and the fair worth of the service to the government, as to amount practically to nothing.

The rates paid the railroads for carrying the mails are based upon the service of transporting such things as letters, printed matter and small merchandise. Rates commensurate with service of this character cannot, by any recognized economic principles, be held commensurate with the service of carrying enormous sums in money and negotiable securities, the shipments of which by the government probably exceed two billions of dollars annually.

The new arrangement has enabled the treasury department to claim a saving equivalent to the entire amount hitherto paid to the express companies; but it would be a great error to suppose that the revenue loss to the carriers will be a real saving to the

government. There is to be imposed upon the post office department the performance of important new duties hitherto regarded as lying wholly outside the proper scope of the postal service. The cost of insuring moneys in transit, hitherto borne by the express companies, and included by them in their charges, must now be assumed by the treasury department. The net results of the change, therefore, seem to be:

1. To oblige the railroads to render for practically nothing the actual transportation service required in effecting transfers of the public funds.

2. To separate the risk of insurance in transit from the general transportation duty and turn this business over to new interests, at rates not as yet disclosed.

3. To transfer from the express companies to the post office department the duties involved in the actual handling, collection, delivery and custody of thousands of extremely valuable packages not hitherto carried in the mails.

The only tangible saving to the government lies in the substantial elimination of payment to the railroads for the transportation service. In other respects nothing but a change in agencies is effected, which is as likely to increase as to decrease costs. This must be held true unless the post office department is to be credited with the ability to operate more efficiently, and at lower labor costs, than the express companies, or unless the treasury department is enabled to obtain abnormally low premium rates from the insurance companies, by reducing the risk in transit at the expense of the railroads. The risk assumed, in the case of money shipments, certainly depends largely upon the degree of physical protection afforded, and it may well be anticipated that the railroads will be called upon, from time to time, to carry not only the government's money, but also to carry, free, armed guards as "agents in charge of the mails," or even to furnish special cars without additional compensation.

When the treasury department last summer shipped $100,000,000 in gold from Philadelphia to New York, as "parcel post," the post office department required four special cars, for which no additional payment was made, and also the transportation for the round trip of 100 guards without payment of fare.

The laws of this country limit the post office department to the payment of an indemnity "not to exceed $100 for any registered piece." The indemnity on the parcel post, upon payment of an extra insurance charge, is limited to $50 per package. In the International Postal Union mails the indemnity limit is 50 francs per piece, or about $9.35.

Does it not seem apparent, from the small amount of indemnity permitted by law, that Congress has never intended that the mails should go beyond a service of ordinary convenience to the general public?

If the treasury department can use the post office department, and consequently the railroads, in the manner contemplated by the order respecting the shipment of public moneys, what is to prevent the war and navy departments from shipping their supplies by mail, with United States troops and marines as armed guards, to be carried free by the railroads as "agents in charge of the mails"?

BUSINESS MEN STUDYING MAIL-PAY QUESTION

The Railway Business Association, George A. Post president, has issued a pamphlet appealing to business men in every state to study the mail-pay question and take it up with senators and congressmen. The space method, advocated by the postoffice department, is vigorously opposed. In ten years, according to this bulletin, the postoffice receipts increased 100.5 per cent and total railway mail pay only 27.7 per cent. "It is our earnest hope," says Mr. Post, "that the government which requires that rates of transportation to private shippers shall be reasonable shall free its own procedure from all suspicion of unreasonableness and unfairness."

The association urges that mail pay shall not again be made a rider on an appropriation bill or dealt with at the crowded end of a session. Continuing, Mr. Post says:

1. Mail pay ought to be adjusted according to some fair standard fairly applied.

2. Mail pay ought not to be affected by the postoffice department balance-sheet. The roads should receive not what the department is willing to pay them, but what the service is worth. Two successive postmasters-general have advocated government ownership of certain public utilities. These considerations ought not to enter into the fixing of compensation.

3. Congress should lay down the rule that compensation shall be equivalent to what private shippers would pay for similar service. There is no more reason for taking the postal deficit out of the railways than out of letter carriers or building contractors. Congress should not hold the roads down to the lowest possible limit. Poor railroads make a poor country.

4. Fixing of rates and measurement of service to be paid for should be subject to review by some government body not directly interested in showing a surplus for the postoffice department. The postmaster-general is an interested party. He should not have final arbitrary authority over matters in dispute between the railroads and his department.

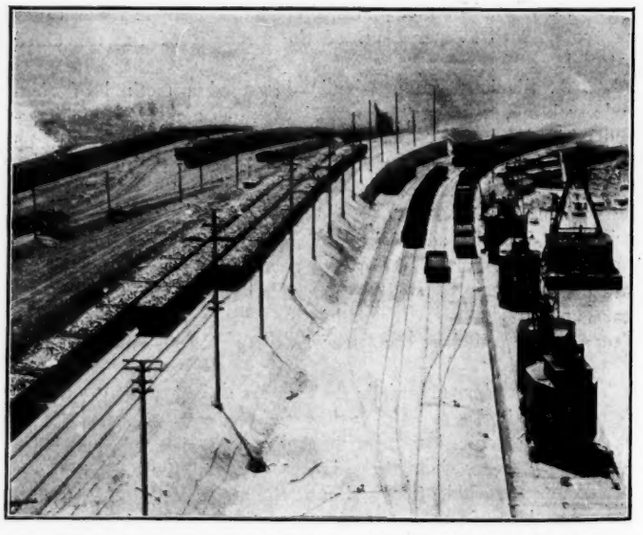
5. Amount of railway service to be paid for should be determined by measurement of actual service performed over a test period, never by arbitrary estimate not subject to a check-up by the facts. Under the weight system now in use department subordinates report what the scales record. Under the proposed space system they would perform a function involving judgment and putting a much greater strain upon their impartiality as between the carrier and the government.

6. Weight should be a factor as well as car-miles and should be taken at least annually. The present law provides for quadrennial weighings. This is too seldom. Increase of actual weight between weighings involves a great loss to the carriers, as notably shown following the establishment of the parcel post.

7. Total mail pay for each road should be large enough to include fair compensation for every facility furnished, and for every service rendered. . . .

A CAR DUMPING MACHINE WITH IMPROVED FEATURES

Conneaut Harbor, Ohio, is an important port on Lake Erie for the transfer of ore coming from the Minnesota ranges to cars which are hauled by the Bessemer & Lake Erie to the steel mills in the Pittsburgh district. In common with the practice at other



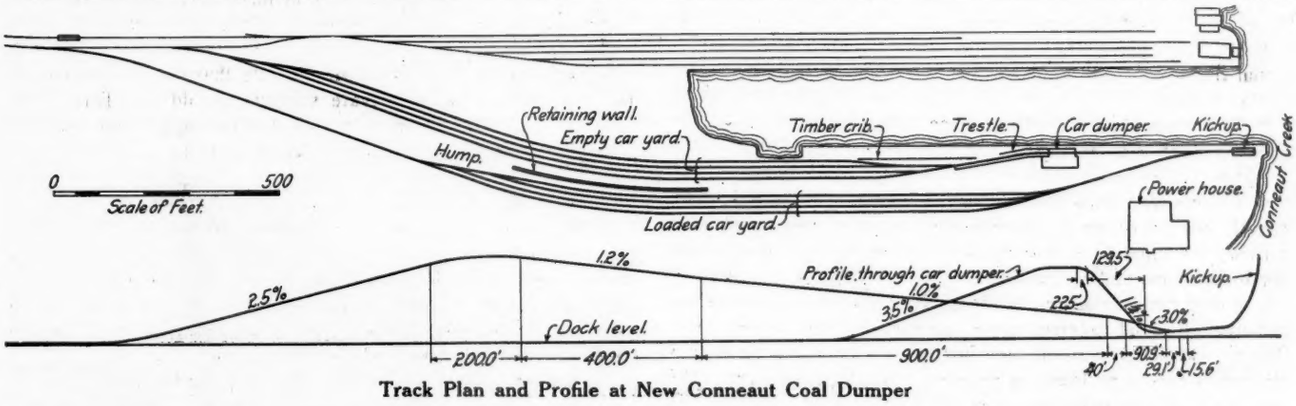
The New Load and Empty Yards from the Top of the Dumper

ports, many of the boats bringing ore in are loaded with coal for the return trip to Duluth or other upper lake ports. In order to do this loading more quickly and economically a new dumper was built at Conneaut Harbor last year, which is designed to

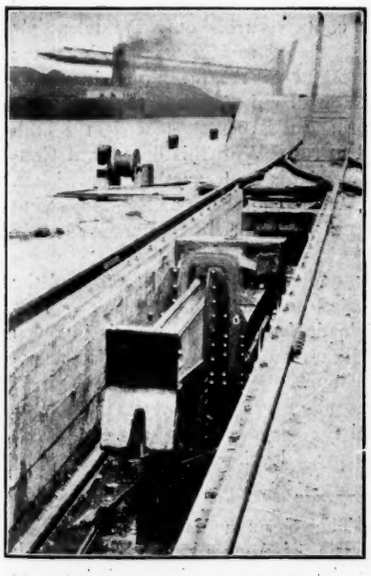
unload 100-ton capacity cars at the rate of one a minute. The improvement included a rearrangement of the yard serving the dumper and the construction of a new concrete dock. The Pittsburgh & Conneaut Dock Company owns and operates the dumper in conjunction with the Bessemer & Lake Erie.

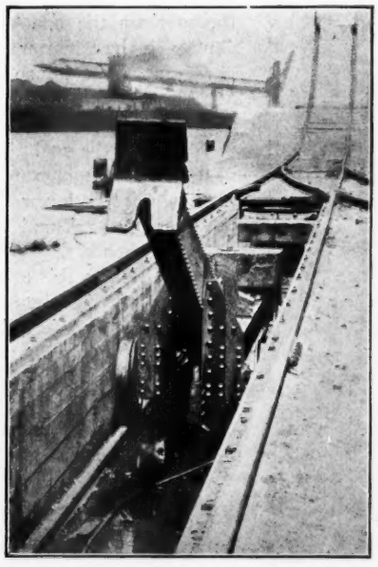
Coal intended for loading boats at this point is left in the Albion yard, about 15 miles from the dock, and is brought from there as needed. The new yard adjacent to the dumper provides four storage tracks for loaded cars, each about 1,200 ft. long and four empty car tracks, each about 1,300 ft. long. The grade in the load yard rises at the rate of 2.5 per cent. to a summit from which it descends at the rate of 1.2 per cent. and then at 1 per cent. to the kickup beyond the dumper. A heavy switch engine pushes 20 cars to the top of this dump and leaves them on the descending grade with the brakes set. When they are wanted at the dumper they are started one at a time, running under the guidance of a rider down to the kickup, which throws them back over the mule pit. They are pulled by the mule up the 11.25 per cent. grade to the platform of the McMyler dumper and after being elevated and dumped they run by gravity down a 3.5 per cent. grade to the empty yard. The load and empty yards are separated by 430 ft. of concrete retaining wall alongside the dump, and are lighted by a row of electric lights supported on poles set between the two yards. The indirect feed, as the system of reversing the direction of movement of the cars before they reach the dumper is called, was worked out for this location to reduce the elevation of the yard tracks somewhat and also to allow the dumper to be located nearer the lake, thus requiring a shorter slip.

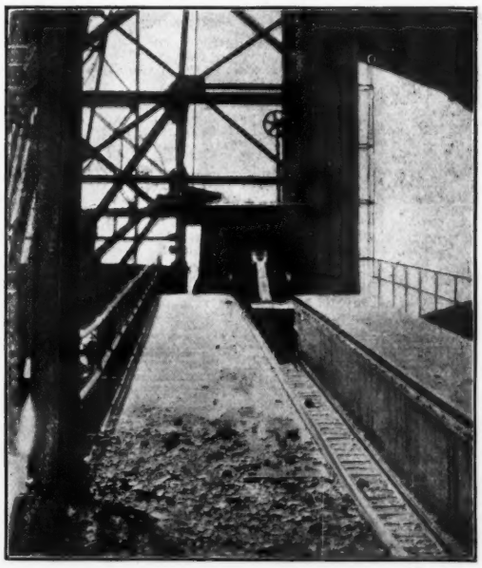
The dumper is constructed entirely of steel, even the window sashes being of this material. It is located on a concrete foundation containing about 1,900 cu. yd., which is supported on piles 35 ft. to 40 ft. long, driven through hardpan for a loading not to exceed 10 tons per mile. The entire foundation is reinforced heavily with bars and in addition the piers supporting the cradle are reinforced with rails. The foundation and the concrete dock are protected by Carnegie steel sheet piling. The steel superstructure is 40 ft. by 62 ft. at the base, and 89 ft. high. The engine room is enclosed in the base of the structure back of the cradle foundation. The top of the rail on the cradle is 13 ft. 9 in. above the top of the main foundation and about 20 ft. above the water level in the slip alongside. The platen rail on the cradle is 52 ft. long and the dumping machine is designed to hoist and dump a load of 280,000 lb. In order to insure clean dumping the platen is turned through an arc of 160 deg. The power required for elevating the car and its contents is considerably reduced by counterweights amounting to 60 tons, consisting of two large steel cylinders filled with iron punchings and four smaller weights, which are suspended from cables on the rear of the framework, operating on suitable guides attached to the steel columns.



Track Plan and Profile at New Conneaut Coal Dumper







Three Positions of the Mule Car. 1—With the Arm Lowered. 2—With the Arm Raised, and 3—Pushing a Loaded Car Onto the Dumper

The difference between the highest and lowest dumping elevations is 27 ft. 9 in., which is covered by the travel of the apron girder. The apron is set at an angle of 37.5 deg. with the horizontal, the center of the discharging spout being 33 ft. 5 in. from the center line of the front column to the dumper frame. A trap door is provided near the end of the pan to allow coal to be dropped through when loading unusually high vessels. The load on the vessel is trimmed by a special rotating nozzle. The framework of the dumper is designed with a view to safeguarding the

men working around it, all ladders having safety guards and all dangerous edges being protected by steel fences.

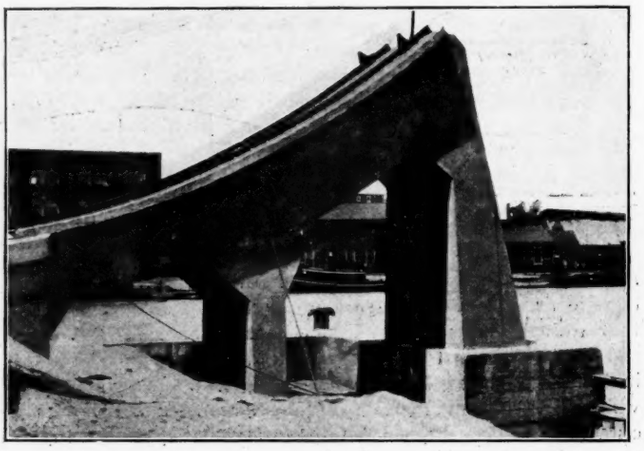
The approaches to the dumper are of concrete and steel trestle construction, with a special reinforced concrete kickup extending about 17½ ft. above the dock level at the end of the receiving track. The coal is wet down in the cars, just before they are pushed up the incline to the dumper, by an automatic tank supported over the mule car tracks.

The "mule" car is of a type especially designed for this installation, running on a track which is depressed for the full length of the incline, thus preventing the possibility of a loaded car coming down from the kickup and striking the mule before it has returned to its pit from the last trip. The top of the mule car rails is 3 ft. 8 in. below the top of the main rails and except when pushing the car up the incline the entire mule is below the level of the upper rails. To make this possible and also to allow it to engage the coupler of a car to push it up the grade, a pivoted and counterweighted arm about 17 ft. 6 in. long is provided. This arm is automatically raised to a position to engage the coupler of a car, when the mule is started forward, by a link connecting the counterweight to a friction bearing on the rear

The Completed Dumper

axle of the truck. When running on the 11.5 per cent. grade the counterweight is just sufficient to balance the parts so that the entire force exerted by the cable is transmitted to the car in pushing it up to the dumper. As a vertical curve is used in the main track at the upper end of the incline and the mule car track continues straight, two auxiliary rails inside the rails of the lower track are used to engage rollers on the counterweights of the arm and thus to alter its position to conform with the difference in elevation between the two tracks. A rear cable is used to drag the mule down the grade rapidly. This important adjunct was developed by P. J. Fickinger, master mechanic of the dock company.

The new plant is operated from the old power house some distance away, the steam being piped to the engine room in the base of the structure. The larger units are operated by steam, the main dumping engines being 22 in. by 30 in., with two cylinders, and the mule engine 18 in. by 24 in., also with two cylinders. A new feature of this installation is the electrical operation of all the smaller movements, including the pan, the trimmer and the



The Reinforced Concrete Kickup

elevator screws. This enables one man located on the end of the pan to control all movements of the pan and chute. In this way it is possible to deliver the coal in the hold of the vessel with the minimum breakage and delay. With a steam operated machine the man on the end of the chute controls only the telescopic chute and the trimmer and it is therefore necessary to signal the operator in the house on the end of the machine when it is necessary to change the elevation of either end of the pan. This requires so much delay that the pan is usually placed at a high position and the coal allowed to run. With this dumper at Conneaut, the chute operator delivers this coal exactly as he wishes. He can raise or lower the inner or outer ends of the pan, swing the telescope back and forth and revolve the trimmers separately or simultaneously.

In addition to this operator, one man is required to control the mule car, one for the cradle, and one in the engine room. This machine has transferred 315 loads from cars to vessels in seven hours, an average rate of 45 cars an hour. It has also transferred 53 cars of coal in one hour.

The foundation for the new plant was built by the dock company with its own forces and the superstructure was erected by the McMyler-Interstate Company, Cleveland, Ohio.

Lille-Warsaw Express.—The German military authorities, only 11 days after the capture of Warsaw, put on through passenger trains, connecting the extremes of occupied enemy territory. A train leaves Lille at 6:40 a. m., Brussels at 8:30, and Berlin at midnight, arriving at Warsaw in time for luncheon the next afternoon. The first trip of the new train eastward from Berlin carried a party of seven American war correspondents. From Lille, northern France, eastward to Warsaw, is about 800 miles.

Effects of the War on Swiss Railways.—The Swiss railways are suffering severely from the effects of the war. In June the State railways' receipts for passenger traffic amounted to $901,200, as compared with $1,474,409 for the corresponding month of 1914, and the revenue from the goods traffic receded from $1,981,397 to $1,688,200.—*Engineering, London.*

FLOOD DAMAGE TO RAILROADS IN MIDDLE WEST

After an interval of 15 years the city of Galveston has been visited with a hurricane closely approximating in severity that of 1900. The storm commenced about 9 a. m. Monday, August 16, after a number of days of severe wind from the southeast which backed the water through the jetty and through San Luis Pass into Galveston Bay. The fury of the storm extended inland for a distance of 75 to 80 miles and continued at its height for 12 hours, ending 7 a. m. Tuesday. Compared to the storm

(Courtesy of St. Louis Globe-Democrat)

Gravois Road, St. Louis, near crossing of the St. Louis, Iron Mountain & Southern

of 1900, the damage to property was relatively small, a condition which may be very largely accounted for by the fact that the Galveston seawall withstood the storm. The only water entering the city was that resulting from the increased level of the water in Galveston bay and West bay.

Contrary to early reports, no damage was done to the bridge portion of the Galveston Causeway. The rumor of damage to the bascule span came about through the fact that a derrick barge slipped its moorings during the height of the storm and drifted toward the bridge, making it necessary to raise the lift span to avoid damage. The barge became stranded in the channel so that it was impossible to close the bridge. The embankment approach on either end of the Causeway was seriously damaged. Nineteen hundred feet on the Galveston end was very largely washed out, though it is expected that the track will be rebuilt in a very short time on timber cribbing. On the Virginia Point end the filling was washed out for a length of 4,200 ft., allowing the concrete protection slabs, railing, etc., to cave in, while the tracks were washed away. The sheet piling, however, suffered no damage. It will be necessary to build a pile trestle for almost the entire distance in order to open rail communication.

Water damage on the rail lines extended as far as Seabrook on the G. H. & S. A. (20 miles); Texas City Junction on the G. H. & H. (4 miles), and Hitchcock on the G. C. & S. F. (8 miles). The damage to the tracks consisted very largely in washing them off of the embankments. The decks of the trestles on the Santa Fe line had been anchored down to the bents in anticipation of

(Courtesy of St. Louis Post-Dispatch)

The Delmar, St. Louis, Station of the Wabash

flood conditions, and except in cases where the trestles were entirely washed out, the damage to them was slight. The lines were reopened for operation as far as the causeway the middle of this week, and through rail connection with the city will be had within the next ten days or two weeks as soon as the break in the causeway can be closed.

The damage to railway property on the island was slight. The new Southern Pacific 1,000,000 bushel elevator sustained practically no injury, while the other elevators of older construction suffered small damage to carriers and spouting systems. A number of freight cars were carried away, as well as a considerable quantity of cotton and other freight, but the damage was by no means as serious as in 1900.

The storm which attacked Galveston reached St. Louis at 7

(Courtesy of St. Louis Post-Dispatch)

Water 20 ft. over Main Line of the Missouri Pacific at Valley Park, 21 miles West of St. Louis, on Sunday, August 22.

p. m. Thursday, August 19, and resulted in the greatest rainfall ever reported in the Mississippi valley for a corresponding length of time. The official rain gage on the roof of the Chemical Building recorded 7.2 in. for the 24 hours ending 7 o'clock Friday, August 20. By 11 o'clock that night it registered 8 in. Corresponding observations were noted elsewhere in the vicinity. The greatest damage to the city resulted from the overflow of the River des Peres, a small stream running through the western part of the city and discharging into the Mississippi near the southern city limits. The banks of this stream are occupied at various places by the Wabash, Missouri Pacific, Iron Mountain, Rock Island and Frisco lines. The storm did not interfere with the operation of any trains Thursday evening, though the water in this stream was rising fast, the mail trains leaving St. Louis shortly after midnight getting away without much delay.

By daylight on Friday the water was 4 ft. over the tracks of the Wabash at the Delmar station located about 5 miles from the Union Depot, and the tracks of all of the other railroads leaving St. Louis on the west side, except the Missouri, Kansas & Texas, and the Burlington, were submerged in many places.

As the storm abated in Missouri it moved across the Mississippi into Illinois, causing trouble to the railways entering St. Louis from the east. The conditions were reported to have been worse than they were following the cyclone of May 27, 1896. Freight traffic was virtually tied up, every effort being directed to arrange detour routes for the passenger trains.

Practically no trains could reach the St. Louis Union Station Friday morning from the west and few attempts were made to get out the westbound trains Friday night. By the time trains were started running west on Saturday, nearly all lines were closed for eastbound passenger trains, except by long detours. The only lines east out of St. Louis which were not interrupted were the Clover Leaf and the Illinois Central, the latter being used by most of the roads to Litchfield, or beyond. Traffic was restored on most of the lines by Sunday evening, though through traffic on the Frisco and the Iron Mountain could not be resumed for a considerably longer time on account of washouts in the path of the storm southwest from St. Louis, particularly on the Meramec and Black rivers.

THE KAISER'S WAR TRAIN.—According to a report from a correspondent of one of the London papers at Zurich, Herr Paul Schmeder has just written a large volume in which he tells the German public all about the life which their war lord leads at the front. The Kaiser's special train, in which he makes his famous and frequent rushes from one front to the other, consists, according to Herr Schmeder, of 10 coaches constructed on modern lines—comfortable certainly, but not luxurious. At the beginning of the war the special train was painted a whitish-blue color, so that the troops and civilians were always able to recognize and cheer the emperor as he passed. But the fear that hostile aviators might find the task of dropping bombs upon the war lord made easier if they were aware of that fact has resulted in the periodical repainting of the train in various colors. "The necessity for this precaution," adds Herr Schmeder, "will be obvious when I mention that a train, purposely made to resemble in color and in form that of the Kaiser's, was promptly bombarded by French flying men shortly after leaving the Frankfort Railway station."—*Railway Gazette, London.*

BULGARIA AND THE DEDEAGATCH RAILWAY.—It is reported that a convention ceding to Bulgaria the Turkish portion of the Dedeagatch Railway was signed in Constantinople on July 22. Under the new arrangement Bulgaria obtains the whole extent of the line traversing Turkish territory, together with the stations Karagach, Demotika and Kuleli Burgas. The Bulgarian frontier will coincide with the course of the River Maritza, all territory west becoming Bulgarian. Round Karagach Station, Adrianople, Bulgaria claims a zone of one mile, 1,522 yards. If this is conceded the new line will be constructed, affording Turkey independent access to Adrianople.

THE LOCAL FREIGHT TRAIN

BY F. H. GARNER,
Inspector of Transportation, Union Pacific, Omaha.

One of the knottiest problems that confronts the operating official to-day is the satisfactory handling of local freight trains. It is of the greatest importance that local freight trains move out of the initial terminal absolutely on time. As a rule they are carded so that, if running on time, they will not interfere with passenger trains and time freight trains. Much care should be exercised in getting a crew that understands every phase of local work. The brakemen should be thorough switchmen and above all things, must not be afraid of plenty of good, hard work.

I have in mind a district on a certain railroad where a local train was scheduled to leave a station at 6 a. m. While the switching was not heavy, this train was handling generally from eight to ten cars of merchandise, with merchandise for every station loaded in all of the cars. The train crew was getting in from three to five hours' overtime unloading merchandise every day. After checking up the movement of the train for several days it was arranged to have these eight or ten merchandise cars which came from three directions, placed at a transfer platform and worked during the night into cars that could be set out with all the merchandise for the heavier stations. These set-out cars averaged about 10,000 lb. of merchandise each, and resulted in the handling of seven merchandise cars over the district instead of ten, and the crew setting out practically every pound of freight that they had been unloading. The result was that the train was at a good many stations waiting for time instead of being from one to five hours behind schedule.

I have never been in favor of handling tonnage on local freight trains. I believe if the local freight train does the local work and gets over the district on schedule time without overtime, it is doing all that can be, and should be, expected of it. The mistake is too often made by chief despatchers and trainmasters of hanging on a few extra cars to help their tonnage statement. In checking up the tonnage I have found instances where local freight trains were so overloaded that the crews were getting in from two to three hours' overtime for the sake of hauling a few extra cars over the district, while at the same time, through trains were being run light in the same direction. I also believe it is a good plan where the local switching is heavy and where the local has a good many cars to pick up which will bring it into the terminal with 45 to 50 cars, that after it has accumulated some 10 or 15 loads, these should be set out at some point on the district for through trains to pick up and haul into the terminal.

On many lines, especially in the West, chain gang crews are being used on local freight trains. This is a mistake. Crews should be assigned to locals, as the men in an assigned crew become familiar with the work and are able to handle it with much greater celerity than a crew not accustomed to local switching. Furthermore, in checking up the damage to freight, caused by its being improperly handled and investigating claims incident to perishable freight being carried by stations, I have found that an assigned crew carries very little freight by, and that the men are more particular when unloading to see that the freight is properly broken down so that it will ride without damage between stations. The station switching is also handled more satisfactorily by an assigned crew. This is probably due to the fact that the members of the chain gang crew know that they probably will not catch the local again for two weeks, and everything they can pass on to the next man they usually do. It is a good plan where one local is run in each direction daily to have the westbound local do the station switching for both directions up to a designated point, instead of having both locals switch until they meet.

ROLL OF HONOR IN AN ENGLISH STATION.—In the main booking hall (ticket office) at Liverpool Street Station in London, nearly the whole of one side has been taken up with a roll of honor of the 3,800 employees of the Great Eastern Railway who have joined the colors.

NEW YORK FREIGHT TERMINALS, 1914

In connection with the recent hearings held by the Interstate Commerce Commission on the application of the railroads terminating at New York harbor for authority to make advances in rates for lighterage, storage and other terminal services, Mr. McCain, chairman of the Trunk Line Association, described the principal features of the situation, as they existed at the time the railroads' application was made, in a statement the substance of which follows:

A—New York City Freight Stations

Because of the location of the boroughs of Manhattan, Brooklyn, Queens and the Bronx across New York harbor from their rail terminals on the New Jersey shore, the trunk lines have 68 freight stations on and adjacent to the Manhattan, Bronx and Brooklyn waterfront, which are (with a few exceptions) served inwards and outwards by through cars by means of car-floats, equipped with tracks of capacity of 8 to 24 cars each, these car-floats being towed across the harbor by tugs. As many of these stations are merely piers, with no inland tracks, the freight is necessarily received from and delivered to shippers' or consignees' drays on the piers or bulkheads, and the railroad performs the labor of loading or unloading the cars upon the piers upon both carload and less than carload shipments.

These stations are owned or leased and operated by the individual roads, except those on the Brooklyn waterfront operated by the Bush Company, New York Dock Company, Jay Street Terminal and Brooklyn Eastern District Terminal, each of which so-called "contract terminal companies" furnishes car-float service and station facilities at the expense of several competing railroads. The Harlem terminal, on the waterfont near 138th street and Park avenue, also jointly serves several competing roads.

The same general rates as apply to or from the New Jersey shore stations are applied to or from these New York and Brooklyn stations, except upon short-haul business, where the rates are too low to absorb the harbor and station expense.

The trunk lines also handle freight across the harbor in cars on car-floats in conjunction with the Long Island Railroad and the South Brooklyn Railway, and serve numerous stations in the eastern and southern sections of Brooklyn one-half to six or eight miles inland, applying the same rates as to or from stations on the Brooklyn waterfront.

By means of this car-float and station service the trunk lines in effect have extended their rails across New York harbor.

B—Lighterage Service on Domestic Carload Freight

There are many private and public piers in New York harbor, as indicated in paragraph "O," which are at or nearer the factory or warehouse of shipper or consignee than carriers' pier stations, and many years ago the practice of lightering freight to or from these special piers was inaugurated. This lighterage is performed by lighters or barges, some of which operate with their own steam, but are generally towed by tugs in the same manner as car-floats, and the service on inbound freight (*vice versa* upon outbound freight) involves transfer from car to lighter at the rail terminal pier on the New Jersey shore, the towage of the lighter across the harbor and the unloading from the lighter to the floor of the wharf at destination, substantially the same rates being applied as to or from adjacent stations.

A considerable list of articles and commodities is excluded from lighterage service because their weight or character involves excessive handling cost or damage to lighters or other freight. These excluded articles and commodities are either received from or delivered to shippers or consignees at certain specified New York or Brooklyn stations, or from or to the lighters of shippers or consignees at the rail terminal piers on the New Jersey shore.

C—Freight Interchanged with Coastwise Vessels

Carload shipments (other than those excluded from lighterage) are interchanged at the vessel's pier—less quantities are handled via the New York or Brooklyn station nearest the vessel's pier, the intervening service being performed by dray. Most of the trunk lines operate through rates via New York in connection with several of the southern coastwise lines, in which event the lighterage or cartage expense is absorbed upon both carloads and less quantities in both directions. In the absence of through rates, the local rates North and South of New York apply, plus (in the case of L.C.L.) the cost of transfer drayage.

D—Import and Export (Other than Bulk Grain)

Carload shipments (other than those excluded from lighterage) are interchanged at the vessel's pier; the lighterage-free rate includes handling to or from the vessel or floor of the pier. Less quantities are handled via the New York or Brooklyn station nearest the vessel's pier, the cost of intervening drayage being absorbed by the inland carriers on import shipments (with certain exceptions specified in tariffs) to competitive western points, but is not absorbed on L.C.L. export shipments.

E—Car Float Service in Lieu of Lighterage

Fruits, fresh meats and various other commodities or articles liable to damage from exposure or handling by lighter, also certain articles and commodities which are excluded from free lighterage, are given free service in cars on floats, in lieu of lighterage to or from private or public piers, when in quantities of six carloads or more in one shipment; this six-car minimum being applied because of the expensive equipment and service involved. If this freight is loaded or unloaded at the private or public pier by shipper or consignee, an amount not exceeding 12 cents a ton, minimum $2 per car, is allowed shipper or consignee for the labor expense, except on fresh meats in bulk and articles excluded from free lighterage.

F—Carload Freight Excluded from Free Lighterage

The railroad transportation rates on this freight apply to or from the piers at the rail terminal on the New Jersey shore, and private lighters which perform harbor service on such freight are in the category of drays performing equivalent land service, at expense of shipper or consignee.

G—Auxiliary Lighterage Equipment

When any trunk line has not the requisite species or number of lighters to handle certain freight offered, "outside" or independent lighters are temporarily hired or chartered, on a basis not exceeding 60 cents a ton (except on lumber and heavy articles on which higher rates are allowed), subject to agreement by the owner of the lighter that no part of the allowance shall be rebated, directly or indirectly, to the owner of the freight.

H—Free Storage of Inbound Lighterage-Free C.L. Package Freight for Domestic Delivery

This freight is granted 10 days' free time in the covered piers at the New Jersey rail terminal (exclusive of day of arrival, Sundays and holidays), after which it may be reordered to lighterage or station delivery, and New York rate protected; when reordered to an ultimate delivery station it is granted three additional days free time (exclusive of day of arrival, Sundays and holidays), so that the same carload of freight may get an aggregate of 15 days' free time, exclusive of Sundays and holidays. If the freight remains at the rail terminal piers beyond the 10 days' free time, nominal rates of storage are assessed.

I—Free Storage of Lighterage-Free Export Package Freight in Carloads

This freight is allowed 30 days free time at the New Jersey terminal; if not then ordered for export, nominal rates of storage are assessed, unless the freight is under through bills of lading to foreign countries.

J—Free Storage of Less-than-Carload Export Freight

This freight is granted 10 days free time at stations on the New York or Brooklyn side, pending cartage to steamer; if not removed within the 10 days free time it is placed in public store.

K—Hay and Straw

Owing to inflammable character and peculiar conditions, this traffic is handled under a different set of rules.

L—Grain, in Bulk, for Domestic Delivery

This traffic, under agreement with the New York Produce Exchange, is unloaded from cars into railroad elevators or

lighters, or held for track delivery and, unless ordered for immediate delivery, is subject to storage charges. The rates, which include free lighterage to points within lighterage limits in lots of 4,000 bushels or more, apply to alongside private or public piers, the discharge of the grain being at the expense of consignee.

M—Grain, in Bulk, for Export

This traffic, by agreement with the New York Produce Exchange, is unloaded from cars to railroad elevators or lighters and is granted free storage for 10 days by the railroads, after which storage charges accrue. The rates applicable to the New Jersey shore include delivery to alongside vessels within free lighterage limits. If the grain is lightered to a ship at a berth pier, the discharge of the grain from the lighter into the ship is performed by the floating elevators of the International Elevating Company at the expense of the grain. If vessel goes to the railroad terminal for the grain, it is discharged by the railroad company into the vessel at a charge of one-half cent per bushel, which accrues in addition to the freight rate.

N—Six Months Free Storage of Coarse Freights

Sundry coarse freights, such as stone and structural iron, in carloads, which are not liable to damage from the weather, are given the privilege of storage on railroad lands at the rail terminals on the New Jersey shore, a nominal charge being assessed to cover the cost of unloading and reloading and six months' storage. This freight retains its free lighterage privilege to any station or lighterage delivery in the harbor.

O—Restricted Area of Free Lighterage

The existing free lighterage limits, which, in some instances, are 12 to 15 miles from the rail terminals on the New Jersey shore, are the result of endeavors on the part of one or more trunk lines to equalize by lighterage service the location of freight stations of other trunk lines along the shore of New Jersey, Staten Island, the Harlem river and immediately beyond Hell Gate.

Note.—The rail terminus of the New York Central at West Sixtieth street, Manhattan, and that of the Baltimore & Ohio at St. George, Staten Island, are to be treated, in all consideration of this subject, on the same basis as the terminals on the New Jersey shore.

List of Freight Stations in New York City and on the Waterfront of New York Harbor.

(Abbreviations are explained at end of article.)

MANHATTAN

Name of Station.	*Location*	*Road.*
Piers 2 and 3, N. R.	Foot Morris St.	Lehigh Valley
Piers 4 and 5, N. R.	Foot Morris St.	Pennsylvania
Pier 7, N. R.	Foot Rector St.	B. & O. R. R.
Piers 10 and 11, N. R.	Foot Cedar St.	C. R. R. of N. J.
Pier 13, N. R.	Foot Cortlandt St.	D. L. & W.
Piers 16 and 17, N. R.	Foot Barclay St.	N. Y. C. & W. S.
Piers 20 and 21, N. R.	Foot Chambers St.	Erie R. R.
Pier 22, N. R.	Foot Worth St.	B. & O. R. R.
Pier 23, N. R.	Foot Franklin St.	N. Y. O. & W. and W. S.
Piers 27, 28 and 29, N.R.	Foot Laight St.	Pennsylvania
St. John's Park	Laight, Varick, Beach and Hudson Sts.	N. Y. C. R. R.
Pier 31, N. R.	Foot Desbrosses St.	N. Y. C., W. S., N. Y. O. & W.
Pier 34, N. R.	Foot Canal St.	Lehigh Valley
Pier 34, N. R.	Foot Canal St.	Central Vermont
Pier 39, N. R.	Foot W. Houston St.	N. Y. C., W. S.[1] Erie R. R.[2] C. R. R. of N. J.
Pier 41, N. R.	Foot Le Roy St.	D. L. & W.
Pier 46, N. R.	Foot Charles St.	C. R. R. of N. J.
26th St. Yard	Foot No. 26th St.	B. & O.
Pier 66, N. R. and 27th Street Yard	Foot W. 27th St.	Lehigh Valley
Pier 68, N. R.	Foot W. 28th St.	D. L. & W. R. R.
28th Street Station	Foot W. 28th St.	Erie R. R.
33rd Street Station	Foot 30-33rd St.	New York Central
36th Street Station	Foot 36th St.	W. S., N. Y. O. & W.
37th Street Station	Foot 37th St.	Pennsylvania
Pier 80, N. R.	Foot 40th St.	Manhattan Ter. Co.[5]
Pier 81, N. R.	Foot 42nd St.	C. R. R. of N. J.
42nd St. Station and Pier 83, N. R.	Foot 42nd St.	N. Y. C., W. S., N. Y. O. & W.
49th Street Station	Foot 49th St.	Erie Railroad
60th Street Station	Foot 59-72nd St.	New York Central[4]
130th Street Station	Foot W. 130th St.	New York Central
131st Street Station	Foot W. 131st St.	Manhattan Ter. Co.[5]
Inwood	Inwood Ave. & Bolton Road, Inwood, N. Y.	New York Central
Pier 4, E. R.	Foot Broad Street	NYC—WS—NYO&W[1]
Pier 7, E. R.	South St. and Coenties Slip	Erie
Pier 21, E. R.	Foot Dover Street	B. & O.
Pier 22, E. R.	Foot James Slip	Penna. (L. I. R. R.)[6]
Pier 26, E. R.	Foot Catherine Street	D. L. & W.
Pier 29, E. R.	Foot Market Street	Central Vermont
Pier 34, E. R.	Foot Rutgers Street	NYC—WS—NYO&W
Pier 31, E. R.	Foot Pike Street	N. Y. N. H. & H.
Pier 45, 46 and 49, E. R. (Old Nos.)	Foot Jefferson Street	N. Y. N. H. & H.
Piers 38, 39 and 40, E. R.	Foot. Mongomery Street	N. Y. N. H. & H.
Stanton St. Station	Foot Stanton Street	Erie R. R.[4]
Pier 70, E. R.	Foot E. 22nd Street	N. Y. N. H. & H.
43rd St. Station	Foot E. 43rd Street	Lehigh Valley[7]
104th St. Station	Foot E. 104th Street	Erie R. R.[4]
124th St. Station	Foot E. 124th Street	Lehigh Valley
Harlem River Station	Foot E. 125th Street	Pennsylvania

BRONX

Name of Station	*Location*	*Road*
Port Morris	Ft. E. 138-142nd Sts.	New York Central
Harlem River	Ft. E. 132nd St. & Lincoln Av.	N. Y. N. H. & H.
Bronx Terminal	Ft. E. 133rd St. & 3rd Av.	C. R. R. of N. J.
Harlem Transfer	Ft. E. 135th St. & Harlem River	Harlem Transfer Co.[8]
E. 149th St. Terminal	Ft. E. 149th St. & Harlem River	Lehigh Valley
Westchester Av.	Westchester & Brook Av.	New York Central
Melrose Junction	Morris Av. E. 155E. 161st St.	New York Central[4]
Claremont Park	Vanderbilt Av. & E. 171st St.	New York Central
Highbridge	W. 170th St. & Harlem River	New York Central[4]
Morris Heights	W. 177th St. & Harlem River	New York Central
Kingsbridge	Kingsbridge, N. Y.	New York Central

LONG ISLAND CITY

Name of Station	*Location*	*Road*
Queensboro Terminal	Foot 13th & 14th Sts.	Brooklyn E. D. Term.[9]
Pidgeon St. Station	Foot Pidgeon St., Hunters Point	B. E. D. T.[10]
Long Island City	Foot 3rd, 4th & 5th Sts.	L. I. R. R.
Woodside	Woodside, L. I.	L. I. R. R.[11]
Blissville	Blissville, N. Y.	L. I. R. R.[4]

BROOKLYN

Name of Station	*Location*	*Road*
Brooklyn Eastern District Terminal	Foot N. 4th to N. 10th Sts., Williamsburgh	B. E. D. T.[12]
No. Fourth St. Station	Ft. N. 4th & N. 5th Sts.	Pennsylvania
No. First St.	Ft. N. 1st St.	N. Y. N. H. & H.
Lackawanna Wallabout Terminal	Ft. Clymer Street	D. L. & W.
Wallabout Pier 2	Wallabout Basin	Pennsylvania
Wallabout Basin	Washington Av. & Wallabout Market	NYO&W—NYS—WS
Wallabout Pier 4	Wallabout Basin	B. & O.
Wallabout Pier 5	Freeman Av., Ft. C. St.	L. V. R. R.
Wallabout Station	Wallabout Basin	Erie R. R.
Jay Street Terminal	Clinton Av. & Metz St.	Jay St. T. Co.[12]
Fulton Terminal	Foot Jay & Bridge Sts.	New York Dock Co.[13]
Baltic Terminal	Fulton St. to Atlantic Ave.	New York Dock Co.[13]
Atlantic Terminal	Foot Baltic Street	New York Dock Co.[13]
Lackawanna South Brooklyn Terminal	Hamilton Av. to Walcott St.	D. L. & W.
Bush Terminal	Foot 25th St., So. Brooklyn	Bush T. Co.[12]
Bushwick Av.	40th to 52nd Sts., So. Brooklyn	L. I. R. R.
East New York	Montrose St. & Bushwick Av.	L. I. R. R.
Vandeveer Park	Atlantic & East New York Avenues	L. I. R. R.
Parkville	Flatbush Av. & Avenue I	L. I. R. R.
Bath Junction	Gravesend Av. & 47th St.	L. I. R. R.
Bay Ridge	14th Av. & 62nd St.	L. I. R. R.[4]
	Foot 65th St., South Brooklyn	L. I. R. R.

SOUTH BROOKLYN

29th Street	First Av. & 29th	Bush T. Co.
36th Street	First Av. & 36th	Bush T. Co.
48th Street	First Av. & 48th	Bush T. Co.
52nd Street	First Av. & 52nd St.	Bush T. Co.
63rd Street	First Av. & 63rd St.	Bush T. Co.
39th St. and 3rd Av	South Brooklyn	So. Brooklyn Ry.
Greenwood	9th Av. & 20th St.	So. Brooklyn Ry.
Kensington	Av. C & Gravesend Av.	So. Brooklyn Ry.
Bath Beach	18th & Bath Avs.	So. Brooklyn Ry.

STATEN ISLAND

Name of Station	*Location*	*Road*
St. George Lighterage	St. George, S. I.	B. & O.
St.George	St. George, S. I.	S. I. R. T.
American Dock Terminal	Tompkinsville, S. I.	S. I. R. T.
Tompkinsville	Tompkinsville, S. I.	S. I. R. T.
Stapleton	Stapleton, S. I.	S. I. R. T.
Clifton	Clifton, S. I.	S. I. R. T.
Rosebank	Rosebank, S. I.	S. I. R. T.
Arrochar	Arrochar, S. I.	S. I. R. T.
South Beach	South Beach, S. I.	S. I. R. T.
New Brighton	New Brighton, S. I.	S. I. R. T.
Sailors Snug Harbor	Snug Harbor, S. I.	S. I. R. T.[11]
Livingston	Livingston, S. I.	S. I. R. T.[4]
West New Brighton	W. New Brighton, S. I.	S. I. R. T.
Port Richmond	Port Richmond, S. I.	S. I. R. T.
Mariners Harbor	Mariners Harbor, S. I.	S. I. R. T.
Arlington	Arlington, S. I.	S. I. R. T.

NEW JERSEY

Name of Station	*Location*	*Road*
Edgewater (Undercliff)	Edgewater, N. J.	W. S.
Edgewater (Undercliff)	Edgewater, N. J.	N. Y. S. & W.
Weehawken Terminal	Weehawken, N. J.	W. S.—N. Y. O. & W.
Weehawken	Weehawken, N. J.	Erie
Willow Av.	Weehawken, N. J.	W. S.
Hoboken		
14th Street	14th St. & Hudson River	H. Mfrs.
5th Street	Foot 5th and 6th Sts.	H. Mfrs.
1st Street	1st and Marshal Sts.	W. S.
Hoboken City	Hoboken, N. J.	D. L. & W.
Hoboken Terminal	Waterfront, Hoboken and Jersey City	D. L. & W.
Jersey City	10th & Henderson Sts.	Erie
Jersey City Terminal	Waterfront	Erie
Long Dock	Pavonia Av.	Erie
Marion	Marion (Jersey City)	Pennsylvania
Jersey City	2nd & Henderson Sts.	Pennsylvania
Jersey City Terminal	Montgomery to 6th Sts.	Pennsylvania
Warren Street	Foot Warren Street	Bklyn. E. D. T.[14]
Jersey City Terminal	Morris Canal Basin	L. V.
Jersey City Terminal	Waterfront	C. R. R. of N. J.
Grand Street	Grand St. & Pacific Av.	L. V.
Jersey Avenue	Jersey Av. & Morris Canal	C. R. R. of N. J.
Johnston Av.	Foot Johnston Av.	L. V.
Communipaw	Communipaw Av.	C. of N. J. Nat. Dks. Ry.
Pacific Av.	Pacific Av.	C. R. R. of N. J.
West Side Av.	West Side Av.	C. R. R. of N. J.
Claremont	Claremont, N. J.	C. R. R. of N. J.
Claremont Yard	Claremont, N. J.	Natl. Dks. Ry.
Eagle Oil Works	Claremont, N. J.	Natl. Dks. Ry.
National Storage Docks	Black Tom	National Dks. Ry.
Greenville Piers	Greenville	Pennsylvania.
Greenville	Avenue D.	CRRofNJ—Nat. Dks. Ry.
Bayonne:		
E. 49th Street	Ft. E. 49th St.	C. R. R. of N. J.
E. 49th Street	Ft. E. 49th St.	Nat. Dks. Ry.
E. 33rd Street	Ft. E. 33rd St.	C. R. R. of N. J.
E. 22nd Street	East 22nd St.	C. R. R. of N. J.
E. 22nd Street	East 22nd St.	Nat. Dks. Ry.
W. 8th Street	Av. C. & W. 8th St.	C. R. R. of N. J.
Constable Hook	Constable Hook	C. R. R. of N. J.
Constable Hook	Constable Hook	Nat. Dks. Ry.

With the foregoing list the reader will understand the abbreviations of the names of the railroads. Other abbreviations are: N. R., North River; E. R., East River.

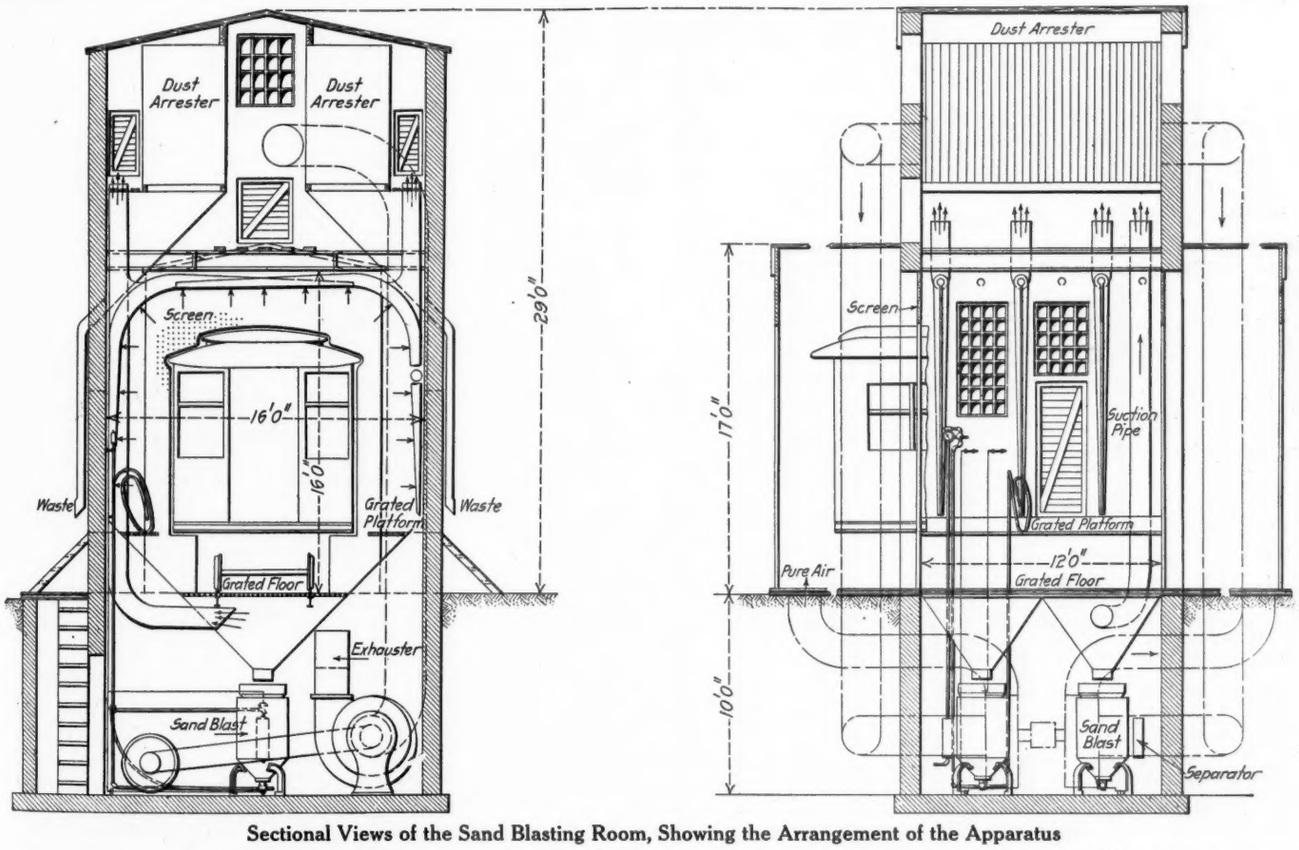
Footnotes:

[1] Inbound C. L. only. [2] Inbound C. L. only; outbound any quantity. [3] Joint terminal for Baltimore & Ohio, Erie, Lehigh Valley, Central of New Jersey. [4] C. L. only; [5] Joint terminal for Baltimore & Ohio and Erie. [6] Outbound only. [7] Eastbound C. L. only; westbound any quantity. [8] Joint terminal for Delaware Lackawanna & Western, Erie, Baltimore & Ohio. [9] Joint terminal for B. & O.; Central N. J.; Erie; L. V.; N. Y. O. & W.; N. Y. C.; W. S. [10] Joint terminal for D. L. & W., Erie. [11] L. C. L. only. [12] Joint terminal for all trunk lines. [13] Joint terminal for all trunk lines; local freight handled in C. L. only at Fulton and Atlantic terminals. [14] Joint terminal for B. & O.; D. L. & W.; Erie; Central Vermont; Lehigh Valley; N. Y. O. & W.; N. Y. C.; N. Y., N. H. & H.; West Shore.

PLANT FOR SAND BLASTING STEEL CARS

Sand blasting is generally conceded to offer an effective means of cleaning steel cars from old paint, mill scale, rust, etc., leaving an ideal surface to receive and retain paint. To meet the demand for an economical means of sand blasting steel cars the plant shown herewith has been developed by the Mott Sand Blast Manufacturing Company, New York and Chicago. In designing this system the purpose has been to so arrange the apparatus that the sand may be handled by gravity, thus eliminating the use of elevating machinery, and reducing the cost of the structure required to house the equipment, and to provide an effective system of ventilation with a minimum expenditure of power.

The plant is installed in a building consisting of a sand blast room 12 ft. long inside, and of sufficient width to allow operators to work on both sides of the car, to each end of which is connected a shelter bay of sufficient length to house a car of the



Sectional Views of the Sand Blasting Room, Showing the Arrangement of the Apparatus

The companies owning or operating freight stations in New York and vicinity, as shown in this table, are the following:

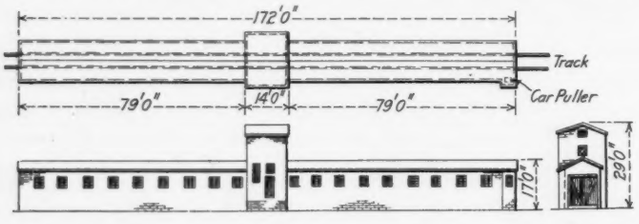
Baltimore & Ohio R. R.
Brooklyn Eastern District Terminal
Bush Terminal Company
Central Railroad of New Jersey
Central Vermont Ry.
Delaware, Lackawanna & Western R. R.
Erie R. R.
Harlem Transfer Company
Hoboken Mfrs. R. R.
Jay Street Terminal Company
Lehigh Valley Railroad
Long Island Railroad
Manhattan Terminal Company
National Docks Ry.
New York Central R. R.
New York New Haven & Hartford R. R.
New York Ontario & Western Ry.
New York Susquehanna & Western R. R.
Pennsylvania R. R.
South Brooklyn Railway
Staten Island Rapid Transit Co.
West Shore R. R. (N. Y. C.)

greatest length which the plant will be required to handle. The portion of the building containing the sand blast room is a two-story structure with a basement, the latter containing the sand blast machines and the motor-driven double exhauster, while the second story contains the dust arrester.

The openings between the sand blast room and the shelter bays are closed by soft curtains designed to conform closely to the outline of the sides and roof of the car. The entire floor of this room is a steel grating, below which are hung two steel hoppers for collecting the abrasive material as it drops from the cars and

directing it to the top of the two sand blast machines, one of which is placed directly below each hopper. The sand blast machines are fitted with screens and automatic filling valves, and by this arrangement all elevating machinery is dispensed with. Sectional grating platforms extend along either side of the room, near the bottom of the car body. These are for the use of the operators working on car bodies; in order to provide access to the underframes or the trucks, or to make the room available for cleaning structural work, the sections are hinged to the side walls so that they may be either in part or all raised against the sides of the building.

The dust arrester in the second story of the blast room is of the manifold cloth screen type and removes all dust from the air passing through it. Hoppers for the collection of the dust are built in below the screens, and are suitably connected to waste chutes extending out through the sides of the building. Suction pipes from the dust arrester lead to a double exhauster in the basement below the blast room. The cleaned air is discharged from these exhausters into the shelter bays, about 10 ft. back from the blast room, thus causing a slight increase of pressure in the shelter bays and inducing a steady flow of air from them into the sand blasting room. The air passes through the small



Type of Building Required to House the Mott Sand Blasting Plant

openings between the curtains and the car body and prevents dust from entering the shelter bays. To the intake side of the dust arrester are connected a number of pipes with slotted openings running down either side of the room and across the roof of the car. Eight of these branches are used, and through them the dust is collected and withdrawn to the arrester. Other suction pipes are placed in the hoppers above the sand blast machines for withdrawing the dust from below the floor.

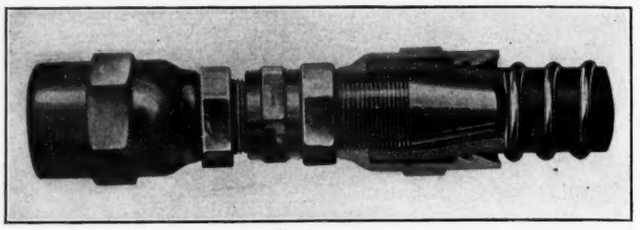
By closely confining the sand blasting operations in a 12 ft. room and by collecting the dust close to its point of origin it is possible to secure adequate ventilation with a low requirement for power. It is claimed that only 25 h.p. is necessary to effect eight changes of air per minute in this room. The ventilation is also materially benefited by the return of the clean exhaust from the fans into the shelter bays on either side of the sand blast room.

The sand blast machines are fitted with ⅜-in. or ½-in. nozzles, and when supplied with air at a pressure of 80 lb. per sq. in. will clean from 4 to 8 sq. ft. of surface per minute, or a total of 8 sq. ft. to 16 sq. ft. per minute for both machines. The apparatus is designed to use any abrasive material, preference being given to metal abrasives as being cheaper and decreasing the amount of dust created.

The Australian Gage Question.—The question of the unification of the railway gages of Australia continues to retain an important position. At a recent conference of state premiers, called to consider this subject, a resolution was adopted proposing that a commission of two leading railway experts, preferably from outside Australia, should be appointed to consider this matter from all points of view. It is suggested that the appointment should be made by the commonwealth and the mainland states. The commissioners would be asked to advise upon the need of a uniform gage, the most suitable gage in view of the present circumstances and future prospects, the best method of carrying out unification, the benefits that will accrue to the states and the probable cost. But the most interesting proposal is that one expert should be brought from the United States and one from the United Kingdom. Various suggestions have been made as to nominations.

HOSE COUPLING

A coupling has recently been developed by the National Hose Coupling Company, People's Gas Building, Chicago, which provides a positive means of application to a rubber hose. As indicated in the illustration, the hose is inserted in the corrugated

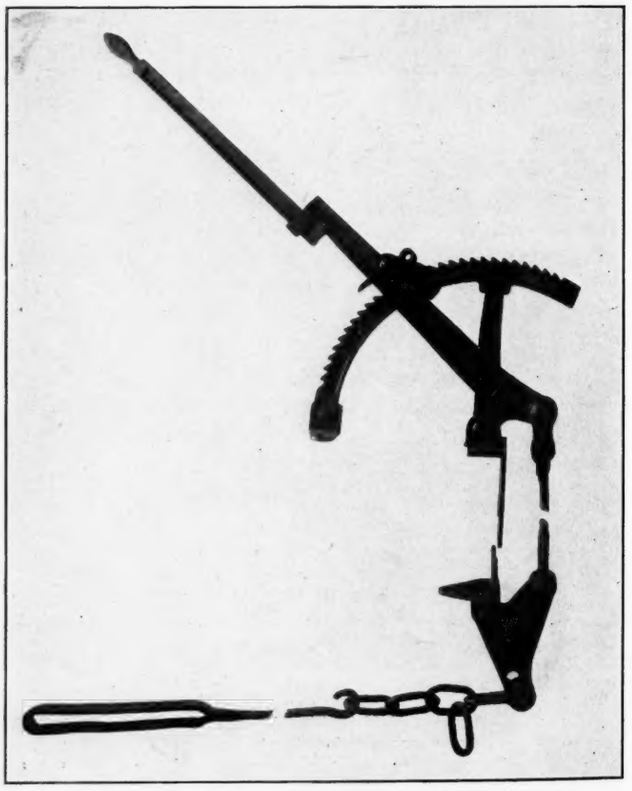


National Hose Coupling

socket and a steel taper expander is screwed into the socket, forcing the hose out against the corrugation. The ends of the socket and the expander are rounded to prevent injury to the hose. No special tools are required for application.

QUICK ACTION LEVER HAND BRAKE

The lever hand brake shown in the photographs has been in service on a number of cars for more than a year and a half. It is known as the Klasing car brake and in place of the usual type of brake shaft and hand wheel employs a lever and tension rod. The lever has an extension handle and to it is secured a pawl, engaging ratchet teeth on a vertical quadrant. The lever is pivoted to the quadrant, the latter being secured to the top of the car so that the short end of the lever projects over the end of the

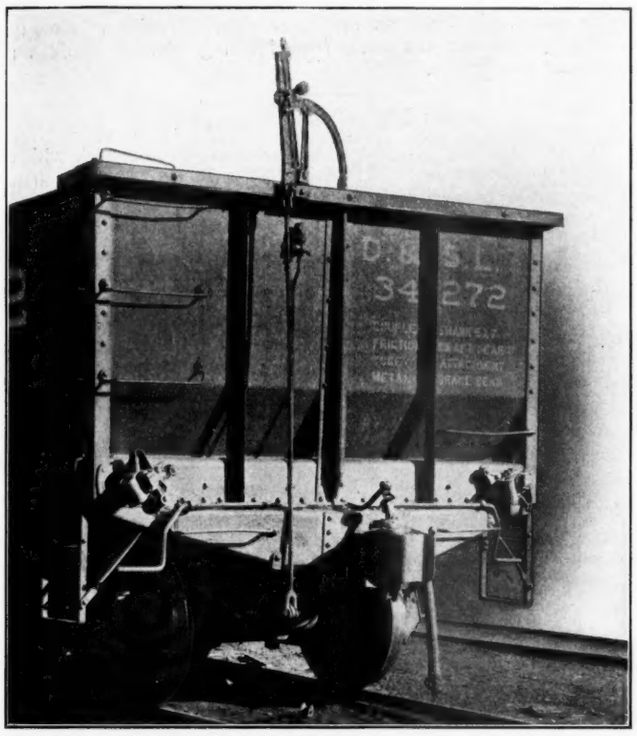


Details of Klasing Car Brake

roof. A bell crank is secured to the end sill directly below the end of the operating lever, to which one of its arms is connected by a tension rod. The other end of the bell crank is connected to the brake rod, which is provided with an adjustable jaw for taking up slack.

The purpose of this design is to facilitate quick action in the application of the brake, and it is claimed to eliminate an element of danger to the brakeman incurred in changing his position when operating the usual type of hand brake. The pawl is controlled by a small weight, thrown forward by hand to engage the ratchet.

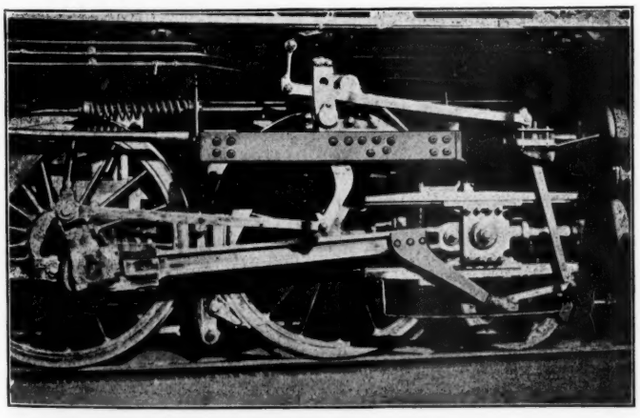
This brake is sold by D. R. Niederlander, successor to the Adreon Manufacturing Company, Security Building, St. Louis, Mo. It may be applied to the top of box cars, to the top of gondolas, and to the end sills of baggage and tank cars, and it is equally suitable for application to box or gondola cars with end steps. The travel of the bell crank is 13 in., which is more than provided by the air brake. The maximum height of the lever above the roof of a box car is about 15 in. with the extension handle collapsed.



The Brake Applied to a Gondola Car

KINGAN-RIPKEN VALVE GEAR DEVICE

The engraving shows a new feature that is applied to outside valve gears for the purpose of overcoming the slow action which the combination lever imparts to the Walschaert and similar valve gears. The bottom connection to the combination lever is made to the main rod, as indicated in the illustration, instead of to the crosshead, as is customary. This gives the combination lever a different movement, in that it responds to the up and down movement of the main rod. As the piston is on the last half of the stroke this causes the release, compression and pre-admission to occur later in the stroke with the same cut-off, thereby giving a longer period of expansion, less compression and less pre-admission with the same amount of lead. At the end of the piston travel, the main rod being in the center of its oscillatory movement, the arrangement will have no effect upon the lead, but as the piston leaves the end of its travel and the main rod again assumes an angle, a quicker, larger and longer-maintained port opening is obtained with the same cut-off, and also a longer cut-off with the reverse lever in the same position. It is also claimed that this arrangement will give a more even distribution of steam to the cylinders; it will permit more uniform valve events and allow the use of a shorter cut-off with its consequent saving of steam. This fact, combined with the longer maximum cut-off obtainable, should provide a quicker starting, faster, more powerful and more economical engine.



Application of the Kingan-Ripken Device to the Walschaert Gear

A number of locomotives on the Minneapolis, St. Paul & Sault Ste. Marie have been equipped with this device. The patents are controlled by the Kingan-Ripken Company, 2627 Lincoln street, N. E., Minneapolis, Minn.

HOW TO TREAT THE PUBLIC

Dr. Frank Crane, a clergyman, whose wisdom is being circulated by the New York, New Haven & Hartford, discourses on politeness as follows:

"It is a great temptation for the busy clerk to drop into machine-like ways. It does not require so much vitality. But it is a mistake. I do not refer so much to the feelings of the customer. . . . Let us go to the strictly business and selfish side. Do you know that your greatest asset is being human? 'Ah!' you reply, 'I'm so tired and worn out that I have no vitality left to palaver over people.'

"Then put on politeness. I mean it. Act the part, if you cannot feel it. Form the habit of smiling, pretend to be deeply interested in each person, learn how to make your voice sympathetic, lay in a store of agreeable phrases to hand out to each one. This is not hypocrisy. It is business. Do you realize that it is the human clerk that is in demand, that attracts customers, that stands the best chance for promotion?

"'The public is a great baby,' somebody said. It's true. I'm one of 'em. I confess I flee a sour-ball clerk as I would a soured glass of milk. Why not humor the public, then?

"I know a ticket agent in Worcester, Mass. His name is Jim Healy. I consider him the best agent in the United States. Because you can't get him out of humor. I used to go into his office and pretend to want a railway ticket just to get under his delightful influence. . . ."

DINING SERVICE ON THE INDIAN RAILWAYS.—The following is part of a communication which recently appeared in the Indian press. "It is an open secret that except on the State Railways no arrangements have been made by the railways in general to supply food to the Mohammedan passengers, and on almost all lines they have to be content with the Hindu food, which is supplied on railways or at some big stations. They have either to take the food provided in the restaurant cars, which, however, is repugnant to their religious feelings, or to carry it with them if they want a better fare. On the state railways, especially on the North Western Railway—which is a model in this respect—there are most convenient arrangements for the supply of an excellent food to Mohammedans at modern rates; indeed, the refreshment rooms there are as commodious and well-furnished for Hindu and Mohammedan passengers as for European passengers, where the best food is obtainable at moderate rates. The Great Indian Peninsula Railway has taken the lead in the matter of reform and has arranged to provide a better food for the Mohammedans at important stations of its system, and all its new waiting rooms will be provided with Mohammedan and Hindu refreshment rooms separate from each other."

General News Department

It is reported that at a meeting of the Eastern Association of Trainmen, comprising representatives of the Brotherhood of Railroad Trainmen and the Order of Railway Conductors, which will be held in Cleveland beginning October 19, action will be taken looking to the starting of a demand for an eight-hour day. It is expected that other brotherhoods will unite with those named.

The city of Baltimore has a City Planning Commission, and the mayor has laid before it an elaborate plan for a belt railroad, connecting all the railroads entering the city. The proposed belt would cost about $17,369,000, but the mayor says that none of this money would come out of the taxpayers. Much of the proposed line is underground and the motive power would have to be electricity. It does not appear that the railroad companies have been consulted concerning this extensive scheme.

The Governor of Pennsylvania announces that the state must make a beginning in the enormous task of abolishing highway grade crossings throughout the state, and he proposes that the 36 grade crossings on the Lincoln highway be attended to first. This highway runs through Lancaster, York, Gettysburg, Chambersburg, Bedford and Greensburg. Following the governor's announcement the chairman of the Public Service Commission has directed the engineers of the commission to make a careful examination of the 36 crossings mentioned.

The New York State Civil Service Commission announces that applications will be received at the office of the commission in Albany until September 8 for the position of expert appraiser and special agent for the Bureau of Special Franchises of the State Tax Department; salaries for appraisers $3,000, and for special agents $1,800 to $2,100. Candidates for appraiser must be between 30 and 50 years of age. They must have education as engineers and knowledge of the tax law of the State in its relation to special franchises, with ability to appraise physical property and special franchises of steam railroads; also telegraph and telephone, and water, gas and electrical properties.

South Carolina Grade Crossing Law

The Legislature of South Carolina, at its last session, passed a law giving the Railroad Commission "full authority to provide such rules and regulations with reference to the crossing of railroad tracks by public highways as in its judgment will be conducive to the public safety; and furthermore, upon complaint, shall investigate and may require that any necessary crossings be made either above or below grade, so as to avoid, as far as possible, any grade crossings." This is the only law pertaining to railroads passed in South Carolina this year.

Progress on the Rogers Pass Tunnel

Material progress is being made on the Rogers Pass tunnel, 26,400 ft. long, which is being driven through the Selkirk mountains by the Canadian Pacific, and which has been under construction since September, 1913, described in *The Railway Age Gazette* of December 11, 1914. The pioneer headings which were driven 50 ft. to one side of the main tunnel have been driven 10,740 ft. from the east end and 8,870 ft. from the west end up to July 29. On this same date, 6,544 ft. of main heading had been completed on the east side and 7,469 ft. on the west side. The full section of the tunnel has been taken out for a distance of 5,216 ft. from the east portal and 3,754 ft. from the west portal.

Telegraph Typewriter on the Seaboard Air Line

Telegraph typewriters, made by the American Telegraph Typewriter Company, are being tried on the line of the Seaboard Air Line between Norfolk, Va., and Jacksonville, Fla., 657 miles. The machines are operated duplex over an iron wire, with regular Morse repeaters at Savannah, 527 miles from Norfolk. The transmitting machine is a typewriter operated by keyboard, while the receiving apparatus is automatic. The electric impulses are as simple as those of Morse sending, and at times the printer is used on one side of the duplex while Morse sending goes on on the other side. Provision is made in this system for the use of perforating machines and an automatic transmitter.

Panama Canal 50 Years Ahead of Time

"We have recently completed the Panama Canal, a work which it would have been better to have left for 50 years rather than to have put it through with the speed with which the government has done it, because we find that we are not prepared to handle the questions of transportation arising by virtue of the completion of the canal at this time, bearing in mind the fact that the cities in the West, tributary to the coast, east as far as the eastern section of Montana, have a population of only 7,000,000 people. Last year the freight shipments from the Atlantic seaboard to Western territory amounted to 170 train loads, and shipments eastbound about half that amount."—F. R. Hanlon, traffic manager of the port of Seattle, Wash., address before convention of United Yardmasters' Association at Seattle.

General Baggage Agents

The meeting place of the General Baggage Agents' Association has been changed from Los Angeles to Kansas City. The date is October 11.

The Roadmasters' Convention

On page 351 of the issue of August 20 we published the program of the Roadmasters' Association, which will be held in Chicago from September 7-10, inclusive. Since this date the program has been changed to the extent that Wednesday will be devoted to an inspection of the various terminals and the Stock Yards, Chicago, a special train leaving the North Western terminal at 9 a. m. and returning at 5 p. m. Otherwise the program remains as announced.

International Association for the Prevention of Smoke

The tenth annual convention of the International Association for the Prevention of Smoke will be held at Hotel Sinton, Cincinnati, Ohio, September 8, 9 and 10. Of the papers to be presented those which will be of special interest to railroads are the following: Value of Publicity in Smoke Abatement Work and Methods of Obtaining It; Smokeless Locomotive Operation Without Special Apparatus; Various Methods of Eliminating Smoke From Roundhouses in Chicago; How Smokeless Operation of Locomotives Was Obtained in Washington, D. C.; What the Railroads Have Done to Abate Smoke in Cincinnati, and Enforcing a Smoke Ordinance.

MEETINGS AND CONVENTIONS

The following list gives the names of secretaries, dates of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next meeting, October 21-23, 1915, Boston, Mass.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York. Annual convention, October 4-8, 1915, San Francisco, Cal.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConnaughy, 165 Broadway, New York. Meetings with American Electric Railway Association.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 19-21, 1915, Detroit, Mich.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Annual meeting, 2d Tuesday in October, 1915, New York.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Annual meeting, October, 1915.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—L. D. Mitchell, Detroit Graphite Co., Chicago, Ill. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next meeting, October 19-21, 1915, St. Louis, Mo.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next convention, September 14-16, 1915, Detroit, Mich.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILROAD MEN'S IMPROVEMENT SOCIETY.—J. B. Curran, Erie R. R., 50 Church St., New York. Meetings, alternate Thursdays, October to May. Assembly Rooms of Trunk Line Association, 143 Liberty St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1063 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Fire Ins. Agt., Mobile & Ohio, Mobile, Ala. Next meeting, October 5-7, 1915, Chicago.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Annual meeting, September 14-17, 1915, Salt Lake City, Utah.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Annual meeting, September 7-10, 1915, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—Carl Nyquist, C. R. I. & P., 1134 La Salle St. Sta., Chicago. Annual meeting, October 19-21, Colorado Springs, Colo.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, 559 Broad St., Newark.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Hotel Astor, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings bi-monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., East Buffalo, N. Y. Annual meeting, September 7-10, 1915, Chicago.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, exceppt July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Building, Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

Traffic News

The Pacific Northwest Demurrage Bureau went out of existence on July 31, and its work has been taken over by the Pacific Car Demurrage Bureau.

A new steamship service from Los Angeles and San Francisco to Panama has been established by the Mexican National Steamship Company. A boat leaves Los Angeles every two weeks stopping at 14 ports on the round trip.

The Traffic Bureau of the Houston (Tex.) Chamber of Commerce, is to be reorganized and, beginning September 1, J. A. Morgan, heretofore traffic manager of the National Cooperage Association, is to be at the head of the bureau. Mr. Morgan was formerly for many years on the Missouri Pacific, where he was agent at important stations.

The Southern Railway has finished its new coal handling plant at Charleston, S. C., and it will be put in operation September 1. It will have a capacity of 40 cars an hour, which is as fast as any ship now in the coal carrying trade can take it. In preparation for a greatly increased movement of coal to Charleston, the Southern has provided storage room for 400 cars.

The New York State Public Service Commission announces that the principal railroads have issued new regulations to go into effect September 15, under which motion picture films will be transported in baggage cars and charged for at the regular excess baggage rate for gross weight, with minimum collection of 25 cents for any shipment, upon presentation of proper transportation and provided that at the time of checking shipper declares in writing the value of the property and that payment is made for such value in excess of $25 in accordance with the rule.

The Lehigh Valley, with a view to bringing farmers and commission merchants in closer relation with each other, has issued a directory of farm products grown along its lines. This directory, which will be sent to the markets in New York, Philadelphia, Boston and the far western cities, as well as to the farmers and merchants themselves, is so arranged that the names of those dealing in a certain product are listed under that head. For example, all the farmers, commission merchants and dealers handling apples are shown under "Apples;" those handling potatoes under "Potatoes," etc.

The Interstate Commerce Commission has authorized the Atchison, Topeka & Santa Fe, in connection with the Mallory Steamship Company, to make low rates on freight from California points to the principal cities on the Atlantic seaboard, to meet the competition of the Panama Canal. These rates are the same as those recently announced by the Southern Pacific and noticed in the *Railway Age Gazette* of August 13, page 294. On asphaltum, beans, peas, canned goods and barley, in carloads, the rate is 40 cents per 100 lb.; dried fruit, in boxes, 60 cents; in sacks, 80 cents. In these special tariffs the Interstate Commerce Commission allows the suspension of the long and short haul rule, the rates from California to some intermediate points being from 30 cents per 100 lb., or more, higher than the through rate.

THE PRODUCTION OF PIG-IRON IN GERMANY.—The Union of German Iron and Steel industries reports that the production of pig-iron within the German Customs Union in the month of April (30 working days) amounted to 938,679 tons against 938,438 tons in March (31 working days). The daily production for April averaged 31,289 tons against August, 1914, 18,925 tons; September, 19,336 tons; October, 23,543 tons; November, 26,299 tons; December, 27,545 tons; January, 28,198 tons; February, 28,701 tons and March 30,272 tons. The production during April comprised:—Foundry pig, 210,488 tons; Bessemer pig, 14,426 tons; Thomas pig, 564,381 tons; steel, etc., 125,023 tons; puddle pig, 24,361 tons. The Rhenish-Westphalian district produced 410,054 tons; Lorraine, 143,510 tons; Luxemburg, 125,432 tons.—*Engineering, London.*

Commission and Court News

INTERSTATE COMMERCE COMMISSIONS

The commission has issued a ruling to the effect that freight tariffs on import and export freight must show the names of the countries to or from which such freight rates apply.

The commission has ordered a second suspension, until March 14, of proposed advances in the freight rates on berries from certain points in North Carolina to New York City and other Eastern points, filed by the Seaboard Air Line. These advances were originally suspended from May 17 last to September 14, but the commission has not had time within which to complete its investigation of their reasonableness.

Increased rates on coal by the Pennsylvania Railroad from Clearfield and other points in Pennsylvania to Providence, R. I., have been suspended from September 21 to March 21.

Increased rates on coal by the Illinois Central and the Chicago & Alton from Wenona and other points in Illinois to various destinations in Iowa have been postponed from September 15 to March 15; proposed by the Illinois Central and the Chicago & Alton railroads.

Rates on Ice to New Jersey Stations

In re Ice Rates to Long Branch and Other Stations in New Jersey. Opinion by the Commission:

The commission finds that the carriers have not justified proposed increases in carload rates on ice from points in New Jersey and Eastern Pennsylvania on the Lackawanna to points in New Jersey on the New York & Long Branch. It also finds that the carriers' carload rates on ice from Tobyhanna, Pa., to various points on the Seashore branch of the Central of New Jersey are unreasonable to the extent that they exceed $1.32 a ton in box cars, and $1.48 in ice cars. A fourth section application is denied to the extent that it seeks authority to continue rates on ice from points on the Lackawanna in New Jersey and Eastern Pennsylvania to Long Branch, N. J., and points south thereof on the New York & Long Branch lower than the rates concurrently in effect to intermediate points. (35 I. C. C., 73.)

Rates on Tanning Material

National Association of Tanners et al. v. Lehigh Valley et al. Opinion by the Commission:

Rates on mangrove bark, myrobalans and valonia from ports on the Atlantic seaboard to destinations in trunk line and central freight association territories are found to be unreasonable to the extent that they exceeded the sixth-class rates. (35 I. C. C., 175.)

Rates on Cottonseed Meal and Cake

Imperial Valley Oil & Cotton Company v. Southern Pacific et al. Opinion by the Commission:

The commission finds that the rates charged by defendants on cottonseed meal, cake and hulls from El Centro and Calexico, Cal., to El Paso, Tex., and on cottonseed meal and cake from the same points to Galveston, Tex., are unreasonable. Reasonable rates of 40 cents per 100 lb., minimum 40,000 lb., are prescribed for the future. (35 I. C. C., 215.)

The Pennsylvania's Steamer Lines on Chesapeake Bay

Opinion by Commissioner Clements:

Upon applications of the Pennsylvania Railroad and certain of its subsidiary companies, and of the Baltimore, Chesapeake & Atlantic and the Maryland, Delaware & Virginia for authority to continue the operation of steamers on the Chesapeake bay and rivers tributary thereto; and it appearing that the Maryland, Delaware & Virginia, which directly owns and operates some of the steamer lines involved, is controlled through stock ownership by the Baltimore, Chesapeake & Atlantic, which directly owns and operates the other steamer lines involved, and that the latter company is likewise controlled through stock ownership by the Pennsylvania and its subsidiary companies, it is held that substantial competition does or may exist on the eastern but not the western shore of the Chesapeake bay between the rail lines of the petitioners and the steamer lines the subject of the applications; and that the steamer lines operating between Baltimore and Claiborne and Love Point, respectively, are necessary extensions of the rail lines of their directly owning carriers as to all other lines, the application is denied. (35 I. C. C., 692.)

The Tap Line Case

Opinion by Commissioner Harlan:

The Sibley, Lake Bisteneau & Southern was one of the parties to the original proceeding in the *Tap Line case.* In the commission's report on that proceeding, 23 I. C. C., 277, 594, it recognized the Sibley, Lake Bisteneau & Southern as a common carrier tap line, but found that it could not lawfully receive divisions from its connecting trunk lines on the product of the proprietary mill in excess of 1 cent per 100 lb. Upon rehearing the commission now holds that this finding should not be modified. (35 I. C. C., 485.)

Chattanooga Log Rates

Suspension Docket No. 256. Opinion by Chairman McChord:

Upon rehearing, it is held that rates and carload minimum weight for certain distances prescribed in the original report, 30 I. C. C. 36, should be modified. It is ordered that on or befor September 15, the rates for the transportation of logs (except cedar), in carloads, to Chattanooga, Tenn., from points on the Alabama Great Southern, 71 to 90 miles, inclusive, and 181 to 250 miles, inclusive, distant from Chattanooga, shall not exceed the following, with a carload minimum of 40,000 lb.

	Rates per 100 lbs. Cents.		Rates. per 100 lbs. Cents.
75 miles and over 70 miles..	4½	210 miles and over 200 miles..	7½
80 miles and over 75 miles..	5	220 miles and over 210 miles..	7½
85 miles and over 80 miles..	5	230 miles and over 220 miles..	7½
90 miles and over 85 miles..	5	240 miles and over 230 miles..	8
190 miles and over 180 miles..	7	250 miles and over 240 miles..	8
200 miles and over 190 miles..	7	(35 I. C. C. 163)	

Coal and Coke Rates in the Southeast

Opinion by Commissioner Clark:

The commission finds that the carriers have justified proposed increased rates on bituminous coal from mines in Illinois, Kentucky, Tennessee and Alabama to the various Mississippi crossings, New Orleans, La.; Memphis, Tenn.; Greenville, Natchez and Gulfport, Miss.; Baton Rouge, La., and certain other points in Mississippi and Louisiana. The increases proposed are 15 cents a ton, and are allowed principally because the present rates are abnormally low and much below the average for like distances in the same territory.

The commission also finds that proposed increases from the Alabama mines to Vicksburg are not justified, but it is held that increases may be made in the rates to this point from the Illinois and Kentucky mines. Increases of but 5 cents are allowed from Illinois and Kentucky to Jackson, Milan and other junction points in Tennessee. These points will henceforth take the $1.25 rate to Memphis. Certain increases are also allowed to Meridian and other Mississippi points.

The commission will also allow the carriers to make the rates on coke to points in the Mississippi valley 25 cents higher than the proposed rates on coal. In most cases the present rates on coal and coke are the same; to New Orleans the coke rate is 50 cents higher, and will henceforth be 35 cents higher. (35 I. C. C., 187.)

Rates to Lebanon, Ky.

Lebanon Commercial Club v. Louisville & Nashville et al., on rehearing. Opinion by Commissioner Clark:

In its original report in this case (25 I. C. C., 277) the commission found that the class rates from Louisville to Lebanon, Ky., were unreasonable, as applied as parts of through interstate rates, and reductions were ordered from 45 cents on first class to 28 cents, etc. The commission now believes from facts not before it at the former hearing that the rates prescribed were too low. It appears that the adjustment of rates in central Kentucky is the result of competitive conditions which the carriers have to a certain extent inherited or been unable to control, and those

rates cannot fairly be used as the only basis for comparison in determining whether or not rates immediately beyond that territory are reasonable. Rates to and from points just outside the territory must bear a proper relation to these rates, however. It is found that the rates from Louisville to Lebanon should not exceed 35 cents on first class, etc., and it is ordered that the rates in the opposite direction, which were not reduced, should be placed at the same standard.

Rates between Springfield, Ky., and Louisville are found discriminatory to the extent that they exceed the rates prescribed between Lebanon and Louisville. The rates between Lebanon and Springfield should not exceed the combinations on Louisville. The maintenance of rates between Cincinnati and Junction City, Ky., lower than the rates between Lebanon and Springfield and Cincinnati, are not found discriminatory against Lebanon or Springfield. (35 I. C. C., 204.)

Rail and Lake Rates Ordered

Port Huron & Duluth Steamship Company v. Pennsylvania Railroad et al. Opinion by Commissioner Hall:

Through routes and joint rates between points in trunk line territory and Duluth, Minn., and points west thereof, ordered to be established on the lines of defendants in connection with complainant's water line.

This proceeding demanded the establishment of through routes and joint rates which defendants had refused and neglected to voluntarily establish between points in trunk line territory on the one hand and Duluth, Minn., Superior, Wis., and points west thereof on the other, by way of the water line of the complainant steamship company from Port Huron, Mich., to Duluth and Superior. Complainant is an incorporated common carrier, entirely independent of railroad ownership or control, operating a line of freight and passenger steamers regularly between Port Huron and Duluth. The record shows that during each season it moves a considerable volume of general package merchandise and some bulk freight, the heavier movement being eastbound. During the summer it carries passengers and baggage. Its tariffs are and for several years have been on file with the commission. It operates three steamers of the approximate value of $300,000 and aggregating 6,171 gross tons. At Port Huron its facilities for interchange of traffic consist of docks, warehouse and trackage yards, with ample space for any needed extension of these facilities. Its docks and warehouse there are reached by the rails of the Grand Trunk and during the season of navigation it is constantly engaged in receiving and delivering freight there from and to that carrier. The Grand Trunk filed an answer admitting the material averments of the complaint.

In connection with the Grand Trunk, its only outlet to the east, it has for some years maintained through routes and joint rates to and from Buffalo, N. Y., and all points in Eastern trunk line territory reached by the line of that carrier or by the lines of any of its connections, except the Pennsylvania. Negotiations have been had looking to a voluntary establishment of through routes, with joint rates equal to those concurrently in effect via the so-called standard lake lines, and have failed only because the parties were unable to agree upon divisions. The Pennsylvania has not absolutely refused to participate in through routes and joint rates on the basis of those in effect via other lake-line routes and states that it will not oppose, although it does not advocate their establishment. Its counsel states, further, that its difficulty in the matter of divisions has been with the Grand Trunk rather than with complainant. The commission orders through routes and joint rates established, the rates not to exceed the joint rates now in effect between the same points via other rail-and-lake and rail-lake-and-rail routes.

"We cannot in this proceeding prescribe the divisions of said rates. The parties will be required to establish the through routes and joint rates herein prescribed. They should endeavor to agree upon the divisions of such rates. If they cannot agree they may present the matter of divisions to the commission in a supplementary proceeding." (35 I. C. C., 475.)

Sample Baggage Defined; Articles May Be Sold

Jewelers' Protective Union et al. v. Pennsylvania Railroad et al. Opinion by Commissioner Hall:

The defendants' present regulation defining sample baggage is held unreasonable and the commission prescribes the definition given below. This proceeding was instituted by 15 national and section associations of wholesale jewelers against 69 railroads operating in all parts of the country. The plaintiffs charged lack of uniformity in the regulations and questioned the reasonableness of the excess baggage charges at 16⅔ per cent of the first-class passenger fares on baggage checked at owner's risk; and complained of the definition of sample baggage, particularly the restriction and limitation of such baggage to samples "not for sale or free distribution."

The first point is dismissed without consideration, as the carriers claim that they are endeavoring to establish uniform baggage rules, and it appears that much progress has already been made. As to the reasonableness of excess charges on baggage checked at owner's risk, the so-called Cummins amendment has replaced the Carmack amendment and it applies to baggage. The initial carrier is now made liable for the full actual loss or injury to baggage caused by it or by connecting carriers, and because of the changed conditions no action is taken.

It has been the custom of traveling salesmen for many years to sell or otherwise dispose of samples upon occasion. Complainants testify that, although this practice was known to the carriers, they did not object until issuance of the report by the commission on regulations restricting the dimensions of baggage. Witnesses for defendants deny that the practice was ever countenanced by the railroads and testify that every effort has been made to abolish it. Its persistence and the difficulty of properly policing the enforcement of any regulation designed to prevent it have their bearing upon the reasonableness of such regulations.

It is said to be impracticable to sell high-grade jewelry by sample, although the great majority of houses in other lines of business pursue this method, delivering the goods at some future date. The interveners emphasize the difficulty said to exist in selling candy or cigars by mere inspection of samples. Other lines of business, such as the dealing in millinery, hardware, crockery, blankets or drug sundries, are cited, in which it becomes necessary to make the best disposition possible of soiled, worn, deteriorated or out-of-date samples and replace them by fresh samples which better represent the stock. All of the instances cited illustrate the commercial need for elimination of restrictions as to "sale or free distribution."

No restriction exists as to sale or free distribution of birds, dogs, newspapers, steamer chairs, baby carriages, tool chests, peddlers' packs, paraphernalia for golf, baseball or cricket, adding machines, balloons and other articles which are carried in baggage service and charged excess baggage rates on the gross weight; but it is intimated in the brief for the Western defendants that they propose to apply the restrictive rule to such articles. Particular mention is made of peddlers' packs. It is said that the business of a peddler and that of a traveling salesman are the same in essence, but the peddler can sell articles checked as baggage, while the traveling salesman cannot. Cancellation of the unrestricted rule on these articles would not benefit complainants or interveners. The articles so carried occupy relatively little space in the baggage car, and if excluded therefrom, would tend to encumber passenger cars, with resulting inconvenience and annoyance to the traveling public.

It has been held in a long line of decisions with respect to freight that circumstances and conditions arising before receipt of a shipment by the carrier at point of origin, or after delivery of the shipment by the carrier at destination, cannot justify differences in rates or classification of property for transportation. But the act itself, in the amendment of 1910, recognizes a distinction between personal and sample baggage. That distinction seems to lie in the use to which the baggage is put, whether personal or commercial, and if so, use becomes the criterion by which, unlike freight, it should be classified. "Sample baggage" had a meaning well understood, although perhaps not well defined, at the time those words were incorporated in the statute. They must be construed in that meaning, and the evidence of use which is before us in this record does not exclude occasional sale or free distribution of the samples carried.

In the light of these decisions and considerations the commission finds that defendants' present regulations defining sample baggage as that "carried by commercial travelers * * *

and not for sale or free distribution" are unreasonable, and that a reasonable regulation defining sample baggage would be as follows:

"Sample baggage consists of baggage for the commercial, as distinguished from the personal, use of the passenger, and is restricted to catalogues, models and samples of goods, wares or merchandise in trunks or other suitable containers tendered by the passenger for checking as baggage to be transported on a passenger train, for use by him in making sales or other disposition of the goods, wares or merchandise represented thereby."

Defendants claimed that the removal of the restriction against the sale of sample baggage would tend to increase the volume of baggage and thus interfere with the safe and efficient operation of passenger trains; but this contention is rejected.

Commissioner Harlan took no part in the decision of this case. (36 I. C. C., 71.)

Rates on Live Stock

In re live stock rates from points in Colorado, South Dakota and other states to Omaha, Neb., and other points. Opinion by Commissioner McChord:

The carriers have proposed to increase their rates on cattle and sheep in carloads from points in New Mexico, Colorado, Utah, Oregon and Wyoming on or west of the Colorado common point line, and from points in Montana, North Dakota and South Dakota to markets on the Missouri and Mississippi rivers and to Chicago. Some increases are also proposed from points east of the Colorado common-point line.

The proposed increases average about 2 cents per 100 lb. on both cattle and sheep. From Montana, North Dakota, South Dakota and certain points in Wyoming the increase is 1 cent on cattle and 2 cents on sheep. The increased rates on sheep apply only to shipments in double-deck cars. There are a few points from which the increases differ from the above figures, but the differences are due to an effort by the carriers to bring about uniformity in the rates from all this general territory.

The commission holds that the proposed increases are not justified, thus adhering to its former decision in 1905 (11 I. C. C., 296, and 12 I. C. C., 1) and its decision in 1908 (13 I. C. C., 418). The commission agrees that the carrying of stock requires special effort and care, but it argues that conditions have not changed sufficiently to justify a modification of the former decisions.

The commission notes that the rates from South Dakota are on a higher plane than in any other part of the territory involved, and the proposed rates are higher than those found reasonable in *Investigation of Alleged Unreasonable Rates on Meat* (22 I. C. C., 160, 177). The present interstate rates are higher than the intrastate rates in the same territory, and it is urged that the proposed increases will only widen the spread between the two. In judging of the property of new schedules, the commission is charged with a broader duty than when simply passing upon the reasonableness of particular rates. The incongruity between the proposed interstate rates and the intrastate scale is a circumstance which goes vitally to the propriety of the rates under suspension. To dispose of this issue it is necessary to have before us the facts and circumstances surrounding the establishment of these intrastate rates. The record, however, in this respect is insufficient.

Commissioner Daniels dissents, noting that the increased rates in issue are, on the contrary, generally lower than intrastate rates in territory comparable with that here affected. (35 I. C. C., 684.)

Withdrawal of Regulations Covering Concentration and Storage of Dairy Products

Investigation and Suspension Docket No. 518. Opinion by Commissioner Daniels:

A proposed cancellation of rules providing for readjustment of aggregate charges on shipments of dairy products concentrated in transit in Western territory is found to be justified, and orders of suspension vacated; proposed cancellation of rules as to storage in transit not justified.

This proceeding has to do with traffic on certain lines which for many years have published special rules and regulations with regard to shipments of butter, eggs and poultry. These are divided into two general groups: (1) Rules providing for the readjustment of aggregate charges on these products shipped in less than carload quantities from points of origin in Nebraska, Kansas, Oklahoma, Missouri and the northwestern corner of Arkansas, to concentration points, and thence in carload lots to the Mississippi river crossings and points east thereof, and to Pacific coast terminals; (2) rules providing that the through carload rate from point of origin to point of ultimate destination, plus a charge, usually $5 per car, will be protected on carload shipments of these commodities stored in transit at intermediate points.

The respondent carriers filed tariffs designed to cancel these rules and regulations and to discontinue the practices thereunder, but protests were made by the Live Poultry & Dairy Shippers' Traffic Bureau and numerous other organizations.

Butter, eggs and poultry move from country stations to concentration points in small lots, averaging about 200 lb., and the less-than-carload rate is paid. At these concentration points, which are usually the larger towns, the shippers or concentrators maintain extensive plants for storing and subjecting these commodities to processes, such as the re-working, grading and repacking of butter; the drying, desiccating, freezing, grading, candling and re-packing of eggs, and the feeding, dressing, grading, freezing and packing of poultry.

The products are shipped forward in carloads, and the carload rate from the concentration point to destination is applied, with a minimum weight of 20,000 lb. The shipper at concentration point thereupon files a claim with the carrier for a refund and there is a readjustment by which the carload rate from the point of origin of each less-than-carload shipment to destination is applied on each less-than-carload shipment in the car sent forward, with the addition of 5 cents per 100 lb. Only when the outbound carload moves within one year from the date of the inbound shipment will refund be made. Then, too, there is a minimum rate of 10 cents per 100 lb. prescribed on each inbound less-than-carload shipment and a minimum charge of 25 cents on each shipment. The actual weights of the inbound shipments as shown on paid expense bills are to be reduced by varying percentages stated in the tariff because of the reductions suffered in the treatment of the products at the concentration point. The shipper is required to keep a record of the transit and non-transit tonnage received at concentration points, and what is forwarded, and to make sworn yearly statements of the total tonnage on hand as compared with that represented by unexpired expense bills.

The carriers propose to discontinue this readjustment of the aggregate charge and this action will compel the application of the less-than-carload rate to points of concentration and the carload rate thence to destination, and while it advances no particular rate, it will result in an increase in the total transportation charges. The resulting charges are estimated by the respondents to be generally about 14 per cent in advance of the present charges and by the protestants from 30 to 35 per cent.

A special arrangement for the encouragement of the concentration of dairy products was first instituted about 1890 by the St. Louis & San Francisco along its lines in Kansas and Missouri. It was later established by the Missouri Pacific and Chicago, Rock Island & Pacific along their lines in these states and in Nebraska. The practice was established for the purpose of building up the industry. The method adopted, however, has not been without opposition. It appears that some of the carriers believing that the practice was wrong in principle established it on their lines only because they were forced to do so under stress of competition.

The average number of less-than-carload shipments to make up the carload moving from the concentration point is from 30 to 40, but frequently a car contains as many as 150 and each one of these small shipments requires the making out of a waybill, an expense bill and all of the other clerical work required by the ordinary less-than-carload shipment. The carload shipments from the concentration point, while loaded and unloaded by the shippers, are not only given all of the services incident to the usual carload shipment, but are made in refrigerator cars furnished by the carriers and given an expedited service. Loss and damage is heavy. In 1914 the Chicago & North Western paid upon eggs 9 per cent of the total gross revenue from the traffic; upon butter and cheese, 1.3 per cent, while the amount paid upon all carload freight was 0.8 per cent. Claims for readjustment require a great deal of detail work in handling;

the charges shown on each expense bill presented must be verified; care must be taken to see that the proper amount of tonnage has been surrendered and that the storage time permitted by the tariffs on that surrendered has not expired. In view of these facts respondents contend that there is no good reason why they should readjust the charges on two separate and distinct transactions on the basis of the carload rate from the point of origin of the less-than-carload shipment to the destination of the carload shipment.

On behalf of protestants it is claimed that the industry in question still needs the help of the readjustment practice, particularly in certain sections of the states where it now prevails and that for this reason it should not be withdrawn at this time. * * * The commission will not require the practice to be continued merely because of alleged commercial necessity. The local class rates in all the states, except Kansas, in which the readjustment practice in issue prevails have been reduced by legislative authority since the institution of the practice. These rates are presumed to reflect local conditions in the various states and so far as this case is concerned are applied on shipments which begin and end within those states. * * * The respondents have justified the proposed application of less-than-carload rates upon less-than-carload shipments and carload rates upon concentration carload lots from concentration points to destination.

The conclusions of the commission are without prejudice to the right of any party to contest the reasonableness of any rates affecting the commodities here involved by appropriate proceedings. Respondents have justified the proposed cancellation of the concentration practice.

The proposed cancellation of storage-in-transit rules is not approved, the carriers having failed to justify their proposal. (35 I. C. C., 469.)

STATE COMMISSIONS

The Public Service Commission of West Virginia has authorized all express companies to increase rates for the transportation of merchandise, following similar action by the federal commission.

The Pennsylvania Public Service Commission has adjourned until September 7. In the intervening time the commissioners will prepare opinions in a large number of cases. Before adjourning on August 14 the commission granted a certificate of public convenience to the City of Philadelphia, approving the plans for the Broad Street Subway and the Northeastern Elevated Railway, from Callowhill to Rhawn street, so far as covered by plans on file with the commission.

The Ohio Public Utilities Commission has appointed a committee of experts to investigate the coal rate disputes between the Hocking Valley and the Sunday Creek Coal Company. Beman Thomas, of the Stock and Bond Bureau of the commission, is in charge, and he will be assisted by C. W. Hillman, William J. Purdy, W. J. Warren and William Wyand. The attorney for the railroad objected to the personnel of the special examiners except Thomas, and it is said that an injunction may be asked for.

The Pennsylvania Public Service Commission has ordered the Philadelphia & Reading to instal, within 30 days, passenger train service on the Middle Creek branch between Swatara Junction and Newtown. The road contended that the branch was built as a mine lateral, and not for the purpose of carrying passengers and that, therefore, the commission was without authority to make any order. The decision holds that though the branch might have been built for the purpose of carrying coal, the act of Assembly creating the branch railroad placed no such limitation upon it and that therefore it may lawfully carry passengers. The order further holds that it is not an answer to a demand for passenger service to show that the particular train would be operated at a loss.

PERSONNEL OF COMMISSIONS

William D. B. Ainey, a former congressman, has been appointed chairman of the Pennsylvania Public Service Commission. He has been acting chairman since early in June when the present members of the commission were sworn in. Mr. Ainey is a lawyer.

In accordance with the provisions of the recently enacted structural engineers' license law of Illinois, E. N. Layfield, acting secretary of the Western Society of Engineers, Chicago, has been appointed president of the State Board of Examiners of Structural Engineers; John T. Hanley, Chicago, secretary, and Prof. I. O. Baker, University of Illinois, Urbana; John W. Musham, secretary Condron Co., Chicago, and C. C. Stowell, civil engineer, Rockford, Ill., members.

COURT NEWS

Tariff—Application to Switching

The Minnesota Supreme Court holds that the state statute requiring railroad tariffs for transportation to be based upon distance applies to movement of cars or commodities between stations and not to switching or like movements within a shipping point, such as a village or city.—Washed Sand & G. Co. v. Great Northern (Minn.), 153 N. W. 610.

Failure to Fence—Damage to Crops

The Oklahoma Supreme Court holds that a railroad is not required to fence its right of way to protect landowners whose land is immediately adjacent to the right of way from the trespass of cattle on such adjacent land over the right of way. The object of the fencing statute is only to prevent animals from going on the right of way. If additional liability had been intended the legislature would have so provided.—Missouri, O. & G. v. Brown (Okla.), 148 Pac. 1040.

Carrier's Risk and Shipper's Risk—Shipper's Option

A carrier had published a tariff of interstate rates on shipments of live stock, containing two rates, one at shipper's risk and the other at carrier's risk. A shipper demanded the rate at carrier's risk. The agent refused him the option and forced upon him a bill without stamping on it "At carrier's risk." The Texas Court of Civil Appeals holds that the company was liable in damages, since by the exercise of the shipper's option the contract became one at the carrier's risk regardless of the terms of the bill of lading, and the carrier could have collected the higher rate at destination.—Chicago, R. I. & G. (Tex.), 176 S. W. 778.

Assumption of Risk

A fireman, pushing back a crane after taking water, stepped on a bolt 6 or 8 in. long and thereby sustained injuries. There were also on the tank a piece of rubber hose, an iron bar, about 2 in. of cinders, and two lumps of coal which had fallen over the lattice work supporting the coal. The engine had no tool box, and it was shown to be customary when engines carry no tool box to place on this platform about the manhole the three articles mentioned. It was held by the Arkansas Supreme Court that the risk of stepping on the bolt was one of those incident to the fireman's employment and was assumed by him.—Kansas City Southern v. Livesay (Ark.), 177 S. W. 875.

Proximate Cause of Injury—Rescuing Property

A section foreman, while with his crew on a hand car, saw a train approaching behind him when it was at such a distance that he had time to get out of its way. When the train was within 200 or 300 feet he thought he had time to remove the car, and would have had but for the fall of one of his men, delaying the removal. He was injured and in an action against the railroad the Montana Supreme Court held that the failure to give a warning signal was not the proximate cause of his injury, and he could not recover. While he was not guilty of contributory negligence in his attempt to save the railroad's property, it would be necessary to his recovery that he show precedent negligence toward himself after the attempt was begun.—Nelson v. Northern Pacific (Mont.), 148 Pac. 388.

State Regulation of Relief Associations

The Indiana Supreme Court holds that the Indiana statute providing that no railroad, domestic or foreign, operating in the state, may establish or maintain any relief association, the rules of which shall require any employee becoming a member thereof to enter into any contract surrendering or waiving any

right to damage against the railroad for personal injury or death, or agree to surrender or waive any right whatever, in case he asserts such claim for damages, and declaring any such agreement void, is within the scope of the police power of the state; is not invalid as an interference with interstate commerce (in the absence of any congressional action), and is not unconstitutional class legislation because applicable to railroads alone.—B. & O. S. W. (Ind.), 109 N. E., 194.

Duty as to Sectionmen at Work

In an action for the death of a section foreman at a crossing which was at the time enveloped in steam and smoke, the Kansas Supreme Court holds that railroad companies in the operation of their roads may rightfully assume that their sectionmen while at work on the track will look out for the approach and passage of trains at all times, and ordinarily such companies owe to their sectionmen no duty to warn them of the approach of trains save when such employees are found to be in a place of danger and it becomes apparent that they will not or cannot protect themselves. Crossing signals are not intended or required for the benefit of sectionmen at work, and the failure to give such signals is not negligence as to such employees. This rule is not changed by the fact that a preceding train going in the opposite direction has left the other track enveloped in steam and smoke. This condition requires added vigilance on the part of the employees to protect themselves.—Land v. St. Louis & S. F. (Kan.), 148 Pac. 612.

Assumption of Risk

A railroad employee lost his life by falling from a track which hung suspended over a washout for about 90 feet, while assisting in preparations for its repair. In an action for his death the jury returned a verdict for the plaintiff, but in reply to a question requiring them to state the particular negligence of the employer that caused the death, they answered that it was the failure to give the deceased proper instructions. The only neglect pleaded in this regard was the omission to instruct the deceased how to walk on the ties—to step on them close to the rail. Specific findings were made that the foreman, after examining the bridge, said in the presence of the deceased that the ties were unsafe to walk on; that he warned the workmen to plank the ties; that he directed them to do this by pushing the planks ahead of them on the rail, then turning them over on the ties, one on each side of the rail. It was held by the Kansas Supreme Court that these findings required a judgment for the defendant.—Spinden v. Atch., T. & S. F. (Kan.), 148 Pac. 747.

When a Person Becomes a Passenger

In an action for injuries caused by being allowed to sit in a cold station the question arose as to when the plaintiff became a passenger. Intending to go to Kilkenny, Minn., from Union, Iowa, he bought a ticket to Mason City and arrived there about 10:30 p.m. He then tried to buy a ticket to Kilkenny. The ticket agent told him that he was busy and could not wait on him then; that the station would be open all night; that the plaintiff's train was due to leave at 3:35 a.m.; and that he could buy his ticket at any time before train time. He left the station, returned about midnight, and remained in the waiting room until about 3 o'clock, when he bought a ticket to Kilkenny. The Minnesota court held that as he was not a through passenger from Union to Kilkenny recovery could only be had for injuries received after he bought his ticket at Mason City. In the language of the court in the prior case of Barnett v. M. & St. L., 123 Minn. 153: "A person is not a passenger all night because he intends to take a train the next morning, even though he asks to buy a ticket the night before, and even though he came the evening before from another station on the same road for the purpose of taking passage on that train."—Barnett v. M. & St. L. (Minn.), 153 N. W. 600.

Federal Employers' Liability Act—"Engaged in Interstate Commerce"

The Illinois Supreme Court holds that a machinist who was sent by his superior officer to repair the whistle rod on an engine engaged in switching and handling interstate commerce, and who while on his way stepped in front of another engine engaged in switching all classes of freight, interstate as well as intrastate, was "engaged in interstate commerce" within the federal employers' liability act. It also holds that the Illinois workmen's compensation act does not apply to a railroad employee injured while engaged in interstate commerce.—Staly v. Illinois Central (Ill.), 109 N. E. 342.

A youth of 17 years was employed by a railroad engaged in interstate commerce, to fire an engine preparatory to its being attached to a train scheduled to run from Weehawken, N. J., to Ravenna, N. Y., and he assisted in operating the engine in the yard, for the purpose of taking on a barrel of oil to be carried on the engine to Ravenna. It was held by the New Jersey Court of Errors and Appeals that he was engaged in interstate commerce.—Tonsellito v. New York Central (N. J.), 94 Atl. 804.

The Kentucky Court of Appeals holds that a fireman at work on a switching engine attached to a car destined to a point within the state, and going on to a yard track to remove some cars thereon, so that an interstate car could be reached and placed on another track in a train to proceed to an interstate destination, was not engaged in interstate commerce.—L. & N. v. Parker's Admr. (Ky.), 177 S. W. 465.

Unloading for Rest, Water and Feed—Some Decisions Under the 1906 Act

The Federal District Court, E. D. Pennsylvania has handed down the following decisions under the rest, water and feed act:

A railroad placed cars of live stock in unloading positions at the consignee's private unloading chute, and notified the consignee thereof, nearly two hours before the expiration of the time limit prescribed by the law; but the stock was not unloaded until nearly three hours overtime. The carrier had no reason for believing the animals would not be promptly unloaded, and it was held that his responsibility as such for the shipment terminated within the time limit.—U. S. v. Reading, 223 Fed. 206.

A railroad delivered a carload of hogs on the consignee's private track opposite a runway for unloading, and notified the consignee to unload within the legal time limit. The hogs, however, were not unloaded until about six hours after the expiration of the time limit, because the consignee's place of business was closed at the time, and because stormy weather rendered unloading impracticable. The railroad had notice of the conditions prevailing at the place of delivery. It was held that the railroad was not subject to the penalty, though the act it committed was knowingly done. It was not guilty of willfully confining the animals in cars beyond the time limit, for the word "willfully" carries with it the thought of an intentional ignoring of the law or of indifference to its provisions.—U. S. v. Reading, 223 Fed., 207.

A contract called for the delivery of live stock at the consignee's private siding, but custom required the railroad to place the cars at a point opposite a runway provided for unloading. The railroad did not place the cars at this point within the time, though they reached the siding within the time limit. Nothing prevented the carrier from unloading the stock, and he was held liable to the penalty, for the delivery of the stock was not complete until each car was placed opposite the runway for unloading.—U. S. v. Reading, 223 Fed., 202.

In another case the cars were placed on the consignee's siding for delivery and notice given, but consignee refused to unload because his place of business was closed and because of the cold weather. The railroad had provided proper unloading pens, but they were not within available distance. It confined the animals in the cars beyond the time limit. Hauling the cars to the railroad's pens would not have released the animals sooner than was done. The railroad knew of the conditions of the consignee's siding and had refused to erect a shed there. The railroad was held not liable for a penalty. The act did not impose a duty to provide shelter pens at every place of delivery of carload shipments of animals. The railroad did not confine the animals beyond the time limit in cars while in transit, and there was no willful failure on its part to comply with the act.—U. S. v. Reading, 223 Fed., 211.

The same court also holds that a railroad confining animals in cars beyond the time limited through a clerical error of the receiving clerk failing to note the loading time at initial point and to mark the shipment for unloading at a point for unloading for rest, water and feed, is not subject to the penalty, because the railroad's act was not knowingly and willfully committed.—U. S. v. Reading, 223 Fed., 213.

Railway Officers

A Robertson, vice-president of the Missouri Pacific-Iron Mountain System, has been appointed chief operating officer for the receivers, with headquarters at St. Louis, Mo.; J. M. Johnson, vice-president, has been appointed chief traffic officer, with headquarters at Chicago; J. G. Drew, vice-president, has been appointed chief accounting officer, with headquarters at St. Louis, Mo.; F. J. Shepard, vice-president, has been appointed assistant to receiver, with headquarters at New York; H. L. Utter, secretary and treasurer, has been appointed treasurer, with office at New York, and F. M. Hickman remains local treasurer, with headquarters at St. Louis.

Operating

H. J. Simmons, since June, 1905, general manager of the El Paso & Southwestern System at El Paso, Tex., has resigned, and G. F. Hawks, general superintendent at El Paso, has been appointed his successor to take effect September 1.

J. T. Ransom, superintendent of the Pullman Company at Philadelphia, has been appointed general superintendent, with headquarters at Chicago, and O. P. Powell, assistant to vice-president, has been appointed assistant general superintendent, to succeed F. M. Bostwick. J. A. Rittenhouse, district superintendent at the Pennsylvania Railroad Terminal, New York City, succeeds Mr. Ransom as superintendent at Philadelphia. F. E. Cook, superintendent at St. Louis, Mo., has been transferred to the Grand Central Terminal at New York, N. Y., to succeed A. J. Grant; W. H. Waite, district superintendent at the Union Depot, Chicago, succeeds Mr. Rittenhouse at the Pennsylvania Terminal, New York; F. A. Cooke, district superintendent at Seattle, Wash., has been transferred to Chicago to succeed Mr. Waite; T. C. Olney, district superintendent at Chattanooga, Tenn., has been transferred to New Orleans, succeeding H. J. Clark, promoted. H. M. Allen has been appointed district superintendent at Seattle, Wash., to succeed Mr. Cooke; J. F. Green has been appointed district superintendent at Chattanooga, Tenn., succeeding Mr. Olney; F. W. Millspaugh has been appointed agent at Nashville, Tenn.

Engineering and Rolling Stock

A. M. Hilborn has been appointed general car foreman of the Illinois Central with office at Memphis, Tenn., succeeding E. A. Nix.

J. A. MacRae, whose appointment as mechanical engineer of the Louisville & Nashville, with headquarters at Louisville, Ky., has already been announced in these columns, was educated at the University of Illinois, where he took a course in mechanical engineering, graduating in 1896. The following year he began railway work as a draftsman in the office of the mechanical engineer of the Chicago & Northwestern, remaining with that company until 1899, when he entered the service of the New York Central & Hudson River. There, until 1904, he was engaged in special work and as draftsman at Albany, and at New York City. From 1904 to 1906 he was mechanical engineer of the Boston & Albany, at Boston. Then until January, 1915, he was mechanical engineer of the Michigan Central at Detroit, Mich., and now becomes mechanical engineer of the Louisville & Nashville, with headquarters at Louisville, Ky., as above noted.

J. A. MacRae

A. J. Himes, valuation engineer of the New York, Chicago & St. Louis, has been appointed engineer of grade-crossing elimination, with headquarters at Cleveland, Ohio.

OBITUARY

J. W. Eber until recently general manager of the Toronto, Hamilton & Buffalo, died on August 18, at Hamilton, Ont.

Patrick A. Gorman, formerly general manager of the Waco & Northwestern, died at Waco, Tex., on August 15th.

E. B. Pleasants, chief engineer of the Atlantic Coast Line, with headquarters at Wilmington, N. C., died on August 22, at Washington, D. C., at the age of 65 years.

T. S. Moise, general manager of the Central of Georgia, with headquarters at Savannah, Ga., died on August 17, at Temagami, Ont. He was born on June 13, 1862, at New Orleans, La., and began railway work in 1880, serving in various clerical positions in agency work and as conductor and yardmaster at Montgomery, Ala., and Macon, Ga., until February, 1890, when he became trainmaster of the Savannah & Western division of the Central Railroad & Banking Company of Georgia, at Columbus, Ga. He was later transferred in the same capacity to the Southwestern division at Macon, Ga., and then was consecutively superintendent of the Savannah & Atlantic division of the same road at Savannah, Ga.; superintendent of the South Carolina division at Augusta, and from February, 1893, to September, 1898, was superintendent of the Savannah & Western division at Columbus, Ga. From September, 1898, to December, 1903, he was superintendent of the Savannah division at Savannah; then to February, 1904, was general superintendent of transportation and later served as general superintendent until January, 1905, when he was appointed general manager. His entire service had been with the Central Railroad & Banking Company of Georgia and its successor, the Central of Georgia Railway.

T. S. Moise

THE BAGDAD RAILWAY.—The Bagdad Railway, if it is completed according to present plans, will extend from Konieh, in the province of Konieh in Asia Minor, southeast of Constantinople, through Aleppo, Mesopotamia, and Bagdad to Busra near the mouth of the Euphrates and Tigris rivers, a total distance of something like 1,314 miles. At the present time the railway is in disconnected sections. There have been about 175 miles of line constructed to the west of the Cilician Taurus, about 105 miles (including a branch line about 36 miles long) in the plain from Adana, about 158 miles between the Amanus mountains and the Euphrates and 79 miles in the neighborhood of Bagdad. In addition to this there is a small branch line in the Adana plain, from Adana to Mersina, 40 miles long, which the Bagdad company has acquired, and which until the opening of the port of Alexandretta for the Asia Minor portions of the Bagdad railway, represents the only access to the sea. This makes an aggregate of 556 miles of the Bagdad Railway so far opened for traffic. In spite of the war, or as it is asserted in some quarters, owing to military considerations connected with the war, the work is being pushed with no small amount of energy. Recently the most important tunnel on the Bagdad Railway, the Bilemedik tunnel, has been pierced and is approaching completion. The sections upon which work is most active are in the Cilician Taurus and the Amanus mountains, which are associated with the military advantages that will be obtained when there is a direct railway connection from the Bosphorus to the Egyptian frontier. The work also comprises more easterly portions which cannot be deemed to be of any direct military moment.—*From an article in Engineering, London.*

Equipment and Supplies

LOCOMOTIVE BUILDING

THE CHICAGO, BURLINGTON & QUINCY has ordered one 18 in. by 26 in. 12-ft. cut scoop wheel rotary snow plow from the American Locomotive Company.

THE COPPER RIVER & NORTHWESTERN has ordered 2 locomotives from the American Locomotive Company.

CAR BUILDING

THE BUTTE, ANACONDA & PACIFIC is inquiring for 100 50-ton ore cars.

WELLS, FARGO & CO. has ordered 35 refrigerator cars from the Pullman Company.

THE CUBA COMPANY is in the market for from 500 to 600 sugar, box and flat cars.

THE CHICAGO & NORTH WESTERN has ordered 50 caboose cars from the American Car & Foundry Company.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA has ordered 100 refrigerator cars from the Haskell & Barker Car Company.

THE ATLANTIC COAST LINE has ordered 750 ventilated box cars from the Mount Vernon Car Manufacturing Company.

THE ATCHISON, TOPEKA & SANTE FE is reported to be inquiring for 500 stock cars, and has ordered 50 ore and concentrate cars from a Chicago builder. This item has not been confirmed.

IRON AND STEEL

THE GULF, FLORIDA & ALABAMA has ordered 6,000 tons of 80-lb. rails from H. F. Wardwell, Chicago.

THE CHESAPEAKE & OHIO has ordered 6,000 tons of rails from the Illinois Steel Company, and 500 tons each from the Cambria Steel Company and the Pennsylvania Steel Company, also 600 tons of structural steel from the Virginia Bridge & Iron Company and the Mount Vernon Bridge Company.

MACHINERY AND TOOLS

THE DELAWARE, LACKAWANNA & WESTERN is in the market for a 42-inch coach wheel lathe and for three or four smaller machine tools.

RAILWAY EXTENSION IN ECUADOR.—Just before the war broke out, a German firm secured a contract from the Ecuadorian Government to build a railway line from Huigra to Cuenca. If the undertaking can be proceeded with—and it is doubtful whether without the active co-operation of United States firms this can be the case—it will mean a great deal for the Guayaquil & Quito Railway, both during and after construction. The whole of the requisite building material must pass over the company's lines, and subsequent traffic must be shared with the new system in generous proportions. Unfortunately, the lack of funds has prevented the existing railway company from maintaining the track in a proper state of repair, with the consequence that breakdowns, and even more serious accidents, are of frequent occurrence. The line, which is 288 miles in length, is, from the engineering point of view, one of the most remarkable in the world; it connects Quito, the capital of the republic, with Guayaquil, the only important port in the country. From the day of its opening in June, 1908, the line has been worked at a heavy loss, not sufficient revenue being received even to pay the interest upon the bonds. It is believed that this constitutes a record in railway working in any part of the world.—*The Engineer, London.*

PRODUCTION OF PIG-IRON DURING WAR IN GERMANY.—The production of pig iron during the war has for each month amounted to the following percentage of the normal peace production: , August 1914, 37.84 per cent; September, 37.42 per cent; October, 47.08 per cent; November, 50.90 per cent; December, 55.11 per cent; January, 56.39 per cent; February, 51.85 per cent; March, 60.54 per cent and April, 60.55 per cent.—*Engineering, London.*

Supply Trade News

G. F. Riddell, superintendent of the Chicago Heights Works of the Inland Steel Company, died of heart failure at his home in Chicago on August 12.

The Keuffel & Esser Company, New York, has been awarded three grand prizes at the Panama-Pacific International Exposition at San Francisco for its exhibit of drawing instruments and slide rules; surveying instruments, and telescopic sights and periscopes, respectively.

The Mesta Machine Company, Pittsburgh, Pa., recently shipped a 1,500-ton quick-acting steam-hydraulic forging press of its standard four-column type to the Pressed Steel Car Co. The valves on this press are so arranged as to permit the use of a single controlling lever and to cause the press to stop automatically at any point the operator desires.

Robert M. Smith, assistant mechanical engineer of the Acme Supply Company, Chicago, has been appointed mechanical engineer. Mr. Smith was formerly chief car draftsman for the Illinois Central and went to the Acme Supply Company last January as inspector. In March he was appointed assistant mechanical engineer, and on August 1 mechanical engineer.

The Chicago & Alton has closed a contract with the Hupp Automatic Mail Exchange Company, Chicago, for the installation of automatic mail exchange apparatus at all of its main-line stations between Chicago and St. Louis which are not regular stops for through passenger trains. This contract was awarded after exhaustive tests extending over a period of six months. This device was described in the *Railway Age Gazette* of November 27, 1914.

The Hoeschen Manufacturing Company, Omaha, Neb., maker of highway crossing alarms, has recently been reorganized and has moved its factory and office into larger quarters with the Paxton & Vierling Iron Works, at Seventeenth street and Union Pacific tracks. This change has greatly increased the capacity of the factory and will facilitate the handling of future orders. F. K. Davis, until recently office engineer in the signal department of the Grand Trunk at Montreal, has been appointed general manager, with headquarters at Omaha.

Bertram Smith, who has been in the storage battery business for the past 15 years, has been appointed manager of the Detroit office of the Edison Storage Battery Company, Orange, N. J. About a year and a half ago Mr. Smith became assistant manager of the Edison Storage Battery Supply Company of San Francisco, Cal., the distributor for the Edison Nickel-Iron-Alkaline Battery on the Pacific Coast. Directly previous to his connection with the Edison company he was manager of the battery department in the Chicago branch of the United States Light & Heating Co. He was formerly secretary and treasurer of the National Battery Company of Buffalo, until its consolidation with the United States Light & Heating Co.

Edward A. Everett, formerly signal engineer of the Michigan Central, has opened an office at 50 Church street, New York, for the sale of railway supplies and signal material. He represents the Hobart-Allfree Company, Chicago, derailers and car replacers; E. J. Clark, Philadelphia, Pa., T. C. Cypress Trunking and Capping; the National Concrete Machinery Company, Madison, Wis., concrete fence post machinery and supplies; the Detroit Twist Drill Company, Detroit, Mich., high-speed bonding drills; the J. Frederick Schroeder Air Felt Company, Newark, N. J., high-grade air felt used in refrigerator car construction, steam pipe covering and as a cushion under relays and electrical apparatus; the Cincinnati Electrical Tool Company, Cincinnati, Ohio, portable electric drills, grinders and reamers; the Keller Pneumatic Tool Company, pneumatic drills, hammers, riveters and chippers; the Reliable Electric Company, Chicago, signal, telephone and telegraph specialties. Mr. Everett also has charge of the sales of the electric release train annunciator, which is one of his patents and which has been sold for several years by the Railroad Supply Company, Chicago. He also has a line of copper clad and bond wires and high strength non-corrosive bond wire.

Railway Construction

ATLANTA & ST. ANDREWS BAY.—This company has under consideration the question of building an extension, it is said, from Dothan, Ala., north via Eufaula. The company now operates a line from Dothan south to Panama City, Fla., 82 miles.

BELLINGHAM, MOUNT BAKER & SPOKANE.—It is reported that work on 288 miles of track for this company will be started within 90 days. This line is to form part of a through line to Port Nelson on Hudson Bay. C. E. Wingate, chief engineer of surveys and construction, Bellingham, Wash.

BALTIMORE (MD.) ROADS.—A plan for a municipality-owned electric belt railroad connecting with the Pennsylvania; Baltimore & Ohio; Western Maryland and Maryland & Pennsylvania railroads, with provision for new tunnels through the city and a union station at the Fallsway and Biddle street, was sent to the City Planning Commission recently by Mayor Preston. William H. Maltbie and Daniel B. Banks are interested in the project.

CHARLESTON SOUTHERN.—Application is to be made in South Carolina on September 17 for a charter to build from the Carolina, Atlantic & Western, in Charleston, S. C., southwest through the counties of Charleston, Colleton, Beaufort and Jasper to a point on the north bank of the Savannah river, thence across the Savannah river to a connection with the Seaboard Air Line on Hutchinson Island in the county of Chatham, Georgia. The incorporators include George E. Dargan, 112½ Cashua street, Darlington, S. C.; Bright Williamson and James D. Evans.

CLEVELAND & OHIO CENTRAL ELECTRIC.—Most of the right-of-way, also terminal rights, have been secured, and the contract to build and equip the first section of 55 miles has been let to the Lathrop-Shea interests; J. J. Shea, Buffalo, N. Y., is president of the three construction companies involved. The contract calls for the completion of the work in 1916. The amended route extends from Cleveland, Ohio, south to Wadsworth, thence via Rittman and Smithville, to Worcester, which will be the southern terminus of the first division. The line is to be extended south to Columbus. (August 20, p. 368.)

LOUISVILLE & NASHVILLE.—The branch of the Louisville & Nashville, which now extends from Pineville, Ky., to Benham, is to be extended, it is said, to a connection with the line in operation to Middlesborough and to Norton, Va.

WILLIAMSPORT, NESSLE & MARTINSBURG.—Construction work is reported under way on a section of this line, and the work is to be continued as far as rights of way have been obtained towards Martinsburg. The plans call for a 15-mile line between the Potomac river and Martinsburg. John Carmichael, president, Hagerstown, Md. (April 9, p. 811.)

RAILWAY STRUCTURES

BALTIMORE, MD.—The Pennsylvania Railroad expects to ask for bids soon for building a new pier at Canton, Baltimore. (June 25, p. 1498.)

CHICAGO, ILL.—The new freight house and warehouse of the Pennsylvania lines will be a five-story building, 745 feet long and 420 feet wide. It will have a pile and concrete foundation, steel frame, concrete fireproofing and brick curtain walls as announced previously. The foundation contract has been awarded to Blome-Sinek Company, Chicago, and the structural steel contract to Thompson-Starrett Company, Chicago. The general contract will not be let for several months. Foundation work is now in progress.

GRAND FORKS, B. C.—Construction work was started recently by the Great Northern, it is said, on a new bridge over North Fork canyon on the railway spur into Granby smelter. The new bridge, which is to be 692 ft. long, with stone and concrete abutments, will cost $65,000, and is to be built to replace the present structure. Until the new bridge is completed the Great Northern will use the spur and bridge of the Canadian Pacific into the smelter. About 2,000 ft. of track will be laid to connect the two lines.

Railway Financial News

BOSTON & MAINE.—In a notice issued by President Hustis urging holders of the notes due September 2 to notify the Old Colony Trust Company, Boston, as to whether they will extend their notes or extend part of them, and receive in exchange Maine Railways notes, President Hustis says: "During the fiscal year ending June 30, 1915, by strict economy, and with the partial benefit of increased passenger and freight rates recently granted, the road was able, notwithstanding a decrease in operating revenue of $1,489,236, to come within about $334,000 of meeting its fixed charges, as against a deficit of $2,044,742 for the previous year. While this improvement does not remove the necessity of reorganization, it strengthens our belief that if a consolidation with the leased lines can be effected on equitable terms, a financially strong corporation will result which will be to the greatest advantage of all."

CHICAGO, ROCK ISLAND & PACIFIC.—The time for the deposit of the 5 per cent debentures with the committee, of which Seward Prosser is chairman, has been extended to October 15.

CHICAGO & WESTERN INDIANA.—J. P. Morgan & Co., the First National Bank and the National City Bank, all of New York, have bought from the Chicago & Western Indiana and are offering to the public $12,935,000 two-year 5 per cent collateral notes of September 1, 1915-1917. The offering price to the public is 99, yielding about 5½ per cent on the investment. The notes are secured by the deposit of $17,247,000 Chicago & Western Indiana first and refunding mortgage 5 per cent bonds, which are part of the $18,497,000 bonds outstanding under the first and refunding mortgage. This mortgage is an absolutely direct and first lien on the company's clearing yard, which includes approximately 18,010 acres of land and which yard is used by the following companies: Pennsylvania Company, Atchison, Topeka & Santa Fe; Illinois Central; Chicago, Burlington & Quincy; Chicago, Rock Island & Pacific; Chesapeake & Ohio; Minneapolis, St. Paul & Sault Ste. Marie; Chicago & Eastern Illinois; Chicago, Indianapolis & Louisville; Erie; Grand Trunk Western; Wabash. The mortgage is also a junior lien on the remainder of the company's property, which includes a passenger station in Chicago, used by the last five named companies and by the Atchison, Topeka & Santa Fe.

MINNEAPOLIS & ST. LOUIS.—This company has completed the purchase of its subsidiary company, the Des Moines & Fort Dodge.

NEW ORLEANS, MOBILE & CHICAGO.—This company was recently sold under foreclosure and was bought in by C. H. Murphey, representing, it is said, the reorganization committee, of which J. W. Platten, New York, is chairman.

MILITARY TRAFFIC ON THE P. L. M. RAILWAY OF FRANCE.—When the mobilization of the French Army was ordered, the Paris, Lyons & Mediterranean was not taken unawares, for, acting on the advice of the minister of war, steps had previously been taken to put the system in a condition suitable for handling heavy military traffic. On the night between August 2 and 3, the ordinary service was entirely suspended and more than 3,000 special military trains were provided in four days. This was the mobilization proper, but concentration went on during the whole month, and required another 4,000 trains up to the thirtieth day of mobilization. After the mobilization and concentration of the army were finished, there began what may be called the third stage of military transportation, embracing the victualling of the troops, the supply of stores and depots, the carriage of supplementary troops, the conveyance of the wounded, etc., and in one period of five weeks 1,600 trains were run for these and similar purposes. The P. L. M. Company already owned two complete hospital trains, but it was necessary to improvise very many more, and there are actually about 1,600 cars now engaged in the transportation of the wounded between the front and the hospitals, of which 670 are passenger coaches.—*Railway Gazette, London.*

[ADVERTISEMENT.]

ANNUAL REPORT

CANADIAN PACIFIC RAILWAY COMPANY—THIRTY-FOURTH ANNUAL REPORT

To the Shareholders:

The accounts of the Company for the year ended June 30th, 1915, show the following results:—

Gross Earnings		$98,865,209.78
Working Expenses		65,290,582.49
Net Earnings		$33,574,627.29
Deduct Fixed Charges		10,446,509.83
Surplus		$23,128,117.46
Contribution to Pension Fund		125,000.00
		$23,003,117.46
Deduct Net Earnings of Pacific Coast Steamships, Commercial Telegraph, and News Department, transferred to Special Income Account		1,494,151.49
		$21,508,965.97
From this there has been charged a half yearly dividend on Preference Stock of 2 per cent., paid April 1st, 1915	$1,605,412.80	
And three quarterly dividends on Ordinary Stock of 1¾ per cent. each, paid January 2nd, 1915, April 1st, 1915, and June 30th, 1915	13,650,000.00	
		15,255,412.80
		$ 6,253,553.17
From this there has been declared a second half yearly dividend on Preference Stock, payable October 1st, 1915	$1,613,638.42	
And a fourth quarterly dividend on Ordinary Stock of 1¾ per cent., payable October 1st, 1915	4,550,000.00	
		6,163,638.42
Leaving net surplus for the year		$ 89,914.75

In addition to the above dividends on Ordinary Stock, three per cent. was paid from Special Income.

THE FOLLOWING ARE THE DETAILS OF SPECIAL INCOME FOR YEAR ENDED JUNE 30TH, 1915.

Balance at June 30th, 1914	$ 5,046,812.46	
Less Dividend paid October 1st, 1914	1,950,000.00	
		$3,096,812.46
Interest on Proceeds Land Sales		64,587.54
Interest on Deposits and Loans		1,466,096.67
Interest from Minneapolis, St. Paul & S. S. Marie Ry. Bonds		159,720.00
Interest from Mineral Range Ry. Bonds		50,160.00
Interest from Toronto, Hamilton & Buffalo Ry. Bonds		10,840.00
Interest from Montreal & Atlantic Ry. Bonds and other Securities		107,902.09
Interest from Berlin, Waterloo, Wellesley & Lake Huron Ry. Bonds		17,040.00
Interest from St. John Bridge & Railway Extension Co. Bonds		6,200.00
Interest from Esquimalt & Nanaimo Ry. Bonds		193,280.00
Interest from Dominion Atlantic Ry. Extension Debenture Stock		56,940.00
Interest from Dominion Atlantic Ry. 2nd Debenture Stock		36,986.67
Interest from Hull Electric Railway		75,000.00
Dividend on Esquimalt & Nanaimo Ry. Stock		125,000.00
Dividend on St. John Bridge & Railway Extension Co. Stock		70,000.00
Dividends on Minneapolis, St. Paul & S. S. Marie Ry. Common Stock		890,645.00
Dividends on Minneapolis, St. Paul & S. S. Marie Ry. Preferred Stock		445,326.00
Dividends on West Kootenay Power & Light Co. Common Stock		55,000.00
Dividends on West Kootenay Power & Light Co. Common Preferred Stock		3,850.00
Dividends on Consolidated Mining & Smelting Co. Stock		209,520.00
Dividend on Berlin, Waterloo, Wellesley & Lake Huron Ry. Stock		12,500.00
Earnings from Ocean Steamships and Hotels		4,370,280.41
Revenue from Company's Interest in Coal Mine Properties		544,294.26
Extraneous Mail Earnings		364,733.61
Net Earnings of Pacific Coast Steamships, Commercial Telegraph, News Department		1,494,151.49
Received for space rented in Office Buildings		139,277.95
		$14,066,144.15
Less:—Payments to Shareholders in dividends: January 2nd, 1915, April 1st, 1915, and June 30, 1915		5,850,000.00
		$8 216,144.15
From this a dividend has been declared payable October 1st, 1915		1,950,000.00

2. The working expenses for the year amounted to 66.04 per cent. of the gross earnings, and the net earnings to 33.96 per cent., as compared with 67.32 and 32.68 per cent., respectively, in 1914.

3. Four per cent. Consolidated Debenture Stock to the amount of £611,797 was created and sold, and the proceeds were applied to the acquisition of the securities of other railway companies whose lines constitute a portion of your system, the interest on which had, with your sanction, been guaranteed by your Company.

4. Four per cent. Preference Stock to the amount of £504,914 was created and sold for the purpose of meeting capital expenditures that had previously been sanctioned by you.

5. During the year 231,297 acres of agricultural land were sold for $3,742,115.00, being an average of $16.17 per acre. Included in this area there were 6,550 acres of irrigated land which brought $55.22 per acre, so that the average price of the balance was $15.04 per acre.

6. All of the Company's outstanding First Mortgage 5% Bonds, amounting at the end of the last fiscal year to £2,638,900, were satisfied and retired at or before their maturity, July 1st, excepting a few that had not been presented for redemption. An amount sufficient to take up these Bonds, as they come in, has been deposited with your bankers, and the Trustees have been asked to certify the satisfaction of the debt and to have the mortgage securing them formally cancelled. Outstanding Bonds, to the amount of £233,200, of the Shuswap and Okanagan Railway Company, whose line is leased to your Company for 999 years, were also acquired during the year, and have been deposited with your Treasury securities.

7. As you were informed at a previous meeting, your Directors have had under consideration for some time the desirability of transferring to a Steamship Company your steamships engaged in traffic on the Atlantic and Pacific Oceans, so as to more effectually separate your railway and steamship finances and operations. To that end, a Company has been organized under the laws of Great Britain, known as "The Canadian Pacific Ocean Services, Limited," with an authorized capital of £2,000,000 sterling, having for its purpose, amongst other things, the acquisition and operation of ocean steamships and the interchange of traffic with your railway lines and others. The requisite extension of your Company's charter powers has been secured to enable it to hold stock and securities of the Canadian Pacific Ocean Services, Limited, and to guarantee payment of the principal and interest of such securities as may be issued with your consent. It is proposed that the Canadian Pacific Ocean Services, Limited, shall purchase and take over your interest in all of the steamships and their appurtenances engaged in ocean traffic, as well as those of the Allan Line Steamship Company, which has been under your control for some time. A moderate estimate of the value of the steamship property involved in the transaction, after making due allowance for depreciation, is $23,500,000. Your Directors recommend that as a consideration for the steamships and their appurtenances to be sold and delivered by your Company, and for the Capital Stock of the Allan Line Steamship Company, carrying with it all that Company's steamship and other properties, you accept as fully paid the Capital Stock of the Canadian Pacific Ocean Services, Limited, namely, £1,962,910, being all excepting the shares necessary to qualify the Directors of the Steamship Company, and in addition, 5% First Debentures or Debenture Stock of the Canadian Pacific Ocean Services, Limited, to the amount of £2,865,860 sterling. The transaction has been completed on this basis, subject to your approval at this Meeting.

8. Six of the Company's older class steamships, namely, the "Montrose," "Mount Royal," "Montezuma," "Montcalm," "Tyrolia" and "Ruthenia," were taken by the Imperial Government in November last, at a price that has not yet been fixed by the Admiralty, and the steamship "Empress of India," after twenty-five years service on the Pacific Ocean, was sold for £85,000 and converted into a hospital ship. Two large modern steamships that were under construction at Belfast were purchased by the Company at a cost of about £700,000, for delivery in July and October of this year. Pressure of other work, however, delayed their completion, and it will be probably some months before they are ready for service.

9. The appropriations made by your Directors for expenditures on capital account during the calendar year were comparatively small, aggregating only $3,546,600. In this amount are included the estimated expenditure on Roger's Pass Tunnel in the Selkirk Mountains, $1,350,000; Passenger and Freight Terminals at Quebec, $300,000; and Passenger Station with approaches, at North Toronto, $400,000. The balance of the amount is made up of works of minor importance on all sections of the Railway.

10. The Victoria Rolling Stock and Realty Company's equipment securities, to which reference was made in the last Annual Report, were disposed of during the year at a price sufficient to repay the amount advanced by the Company.

11. Uncontrollable conditions caused an abnormal decline in the gross revenue of your railway lines for the year, and, although the working expenses were very substantially reduced, the net earnings were $8,851,300 less than in the previous year, leaving a margin barely sufficient to meet the customary distribution to shareholders. Against this your Special Income, from which a portion of the dividend is paid, was $2,381,461 greater this year than last.

Your Directors were of the opinion that in the circumstances there was no good reason for making any change in the rate of dividend, and acted accordingly.

12. Vice-President McNicoll, after more than 40 years' continuous connection with the Company and one of its acquired lines, was compelled by failing health to relinquish the arduous duties of his office, and he, therefore, resigned in December last. The resignation was accepted after the Directors had expressed in a most pronounced way their high appreciation of Mr. McNicoll's services to the Company, and their personal esteem and regard for him. Mr. George Bury, Vice-President in charge of the Company's Western Lines, was promoted to fill the vacancy caused by Mr. McNicoll's retierment, and he was also elected a member of the Board of Directors.

13. The under-mentioned Directors will retire from office at the approaching Annual Meeting. They are eligible for re-election:—

SIR WILLIAM C. VAN HORNE, K.C.M.G.,
MR. RICHARD B. ANGUS,
SIR EDMUND B. OSLER, M.P.,
SIR HERBERT S. HOLT,

For the Directors,
T. G. SHAUGHNESSY,
President.

MONTREAL, August 9th, 1915.

SCHEDULE "C"

DETAILS OF EXPENDITURE ON ADDITIONS AND IMPROVEMENTS FROM JULY 1ST, 1914, TO JUNE 30TH, 1915.

EASTERN LINES:		
Additional Sidings, Buildings, Stations and Yards	$ 97,928.65	
Permanent Bridges and Improvements of Line	431,088.27	
Double Tracking	584,983.94	
Right of Way	5,432.67	
		$1,119,433.53
MONTREAL TERMINALS		220,360.27
Windsor St. Station Extension		51,939.90
Double Track Bridge over St. Lawrence River		5,468.44
Drawbridge over Lachine Canal		116,618.63
WESTERN LINES:		
Additional Sidings, Buildings, Stations and Yards	$231,950.67	
Permanent Bridges and Improvements of Line	397,016.62	
Fort William Terminals, including Coaling Plant	45,506.68	
East Winnipeg Yard	124,858.37	

Winnipeg New Elevator	209,764.00	
Winnipeg Station and Hotel	1,047,453.35	
Winnipeg Terminals	6,204.93	
Calgary Hotel	157,849.09	
Vancouver Terminals	451,169.96	
Double Tracking	2,720,206.71	
Right of Way	5,032.02	
		5,397,012.40
Additions to Office Buildings and Hotels		2,091,960.49
Rented and Temporary Sidings		39,871.19
Telegraph Extensions and Additions		47,682.02
		$9,090,346.87

SCHEDULE "D"

DETAILS OF EXPENDITURE ON LEASED AND ACQUIRED LINES, FROM JULY, 1ST, 1914, TO JUNE 30TH, 1915.

NEW BRUNSWICK RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	$ 20,270.13	
Permanent Bridges and Improvements of Line	109,902.58	
St. John Terminals	55,402.69	
		$ 185,575.40
ATLANTIC & NORTH WESTERN RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	35,067.11	
Permanent Bridges and Improvements of Line	25,936.57	
Right of Way	1,562.00	
		62,565.68
MONTREAL & OTTAWA RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	1,996.49	
Permanent Bridges and Improvements of Line	Cr. 13,101.93	
Right of Way	3,134.27	
	Cr.	7,971.17
MONTREAL & WESTERN RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	1,272.51	
Permanent Bridges and Improvements of Line	35,359.54	
Account Purchase of Road	14,462.28	
		51,094.33
ONTARIO & QUEBEC RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	170,939.60	
Permanent Bridges and Improvements of Line	260,886.48	
Double Tracking	195,686.19	
Toronto Terminals	421,778.76	
Right of Way	795.40	
		1,050,086.43
MANITOBA & NORTH WESTERN RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	3,488.63	
Permanent Bridges and Improvements of Lines	9,680.33	
Right of Way	451.74	
		13,620.70
MANITOBA SOUTH WESTERN COLONIZATION RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	148.61	
Permanent Bridges and Improvements of Line	24,186.43	
		24,335.04
CALGARY & EDMONTON RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	5,689.20	
Permanent Bridges and Improvements of Line	7,182.88	
Right of Way	919.86	
		13,791.94
COLUMBIA & WESTERN RAILWAY:		
Additional Sidings, Buildings, Stations and Yards	Cr. 1,191.49	
Permanent Bridges and Improvements of Line	97,502.68	
Right of Way	818.00	
		97,129.19
NEW BRUNSWICK SOUTHERN RAILWAY		12,484.67
CAP DE LA MADELEINE RAILWAY		173.00
ST. MAURICE VALLEY RAILWAY		2,443.87
JOLIETTE & BRANDON RAILWAY		22.49
OTTAWA, NORTHERN & WESTERN RAILWAY		16,094.91
LINDSAY, BOBCAYGEON & PONTYPOOL RAILWAY		1,340.45
GEORGIAN BAY & SEABOARD RAILWAY		46,640.20
GUELPH & GODERICH RAILWAY		24,462.16
TILLSONBURG, LAKE ERIE & PACIFIC RAILWAY		1,811.33
WALKERTON & LUCKNOW RAILWAY		22,423.20
GREAT NORTH WEST CENTRAL RAILWAY		175.50
COLUMBIA & KOOTENAY RAILWAY		7,197.63
NICOLA, KAMLOOPS & SIMILKAMEEN RAILWAY		616.14
KASLO & SLOCAN RAILWAY	Cr.	30,569.74
		$1,595,543.35

RECEIPTS AND EXPENDITURES.
YEAR ENDED JUNE 30TH, 1915.

Cash in hand, June 30th, 1914		$36,777,725.02
RECEIPTS:		
Surplus Revenue as per statement	$21,508,965.97	
Special Income as per statement	10,969,331.69	
		32,478,297.66
LAND DEPARTMENT:		
Lands and Townsites:		
Net proceeds of sales	3,310,535.69	
Less Irrigation Expenditures	982,450.72	
	2,328,084.97	
Deferred Payments on previous years' sales	2,726,890.21	
	5,054,975.18	
Less amount remaining in Deferred Payments on year's sales	4,680,425.02	
		374,550.16
FOUR PER CENT. PREFERENCE STOCK:		
Amount realized from issue £504.914		2,182,763.46
CONSOLIDATED DEBENTURE STOCK:		
Amount realized from issue £611,797		2,781,731.36
VICTORIA ROLLING STOCK & REALTY COMPANY, LIMITED, BONDS		13,630,000.00
		$88,225,067.66
DEDUCT:		
Agents and Conductors' Balances	$2,775,683.51	
Net Traffic Balances	502,500.43	
Miscellaneous Accounts Receivable	8,870,601.74	
	12,148,785.68	
Advances to Lines and Steamships under Construction	42,472,295.22	
Advances and Investments	10,457,984.79	
	65,079,065.69	
Amount at June 30th, 1914	62,169,167.78	
		2,909,897.91
		$85,315,169.75
EXPENDITURES:		
Dividends on Preference Stock:		
2 per cent. paid October 1st, 1914	$1,564,493.46	
2 per cent. paid April 1st, 1915	1,605,412.80	
		$3,169,906.26
Dividends on Ordinary Stock:		
2½ per cent. paid October 1st, 1914	6,500,000.00	
2½ per cent. paid January 2nd, 1915	6,500,000.00	
2½ per cent. paid April 1st, 1915	6,500,000.00	
2½ per cent. paid June 30th, 1915	6,500,000.00	
		26,000,000.00
Construction of branch lines		695,359.07
Additions and Improvements, main line and branches, Schedule "C"		9,090,346.87
Additions and Improvements, leased and acquired lines, Schedule "D"		1,595,543.35
Rolling Stock Equipment		338,667.94
Shops and Machinery		54,182.88
Ocean, Lake, and River Steamers:		
Completion of River Steamers and Barges	37,432.98	
Purchase of Steamship "Medora"	435,566.91	
	472,999.89	
Less amount paid from Steamship Replacement	435,566.91	
		37,432.98
1st Mortgage 5% Bonds redeemed £2,074,000 at par		10,093,466.67
Deposited with Trustee of Special Investment Fund		3,782,191.88
SECURITIES ACQUIRED:		
Campbellford, Lake Ontario & Western Ry. 1st Mortgage Bonds	2,630,000.00	
Shuswap & Okanagan Ry. 1st Mortgage Bonds	1,138,699.00	
Alberta Ry. Irrigation Co. Stock	7,300.73	
Public Markets Limited Stock	5,000.00	
Shuswap & Okanagan Ry. Stock	486.67	
Toronto, Hamilton & Buffalo Ry. Stock	3,400.00	
		3,784,886.40
Payment of Equipment Obligations		1,570,000.00
		60,211,984.30
Deduct Decrease in Material and Supplies on hand		1,956,630.04
		$58,255,354.26
ADD DECREASE IN LIABILITIES:		
Current Liabilities	12,552,309.69	
Interest on Funded Debt	830,614.11	
Reserves and Appropriations	10,852,465.52	
	24,235,389.32	
Amount at June 30th, 1914	34,239,935.18	
		10,004,545.86
		68,259,900.12
Cash on hand		17,055,269.63
		$85,315,169.75

STATEMENT OF EARNINGS FOR THE YEAR ENDED JUNE 30TH, 1915.

From Passengers		$24,044,282.83
" Freight		60,737,737.25
" Mails		1,389,333.56
" Sleeping Cars, Express, Telegraph and Miscellaneous		12,693,856.14
Total		$98,865,209.78

STATEMENT OF WORKING EXPENSES FOR THE YEAR ENDED JUNE 30TH, 1915.

Transportation Expenses	$32,083,169.65
Maintenance of Way and Structures	11,400,538.89
Maintenance of Equipment	11,307,965.04
Traffic Expenses	2,990,163.97
Parlor and Sleeping Car Expenses	1,111,253.29
Expenses of Lake and River Steamers	1,051,781.69
General Expenses	3,963,202.80
Commercial Telegraph	1,382,507.16
Total	$65,290,582.49

TRAIN TRAFFIC STATISTICS—FOR TWELVE MONTHS ENDED JUNE 30TH, 1915 AND 1914.
EARNINGS OF LAKE AND RIVER STEAMERS NOT INCLUDED IN THIS STATEMENT.

	Year ended June 30th, 1915.	Year ended June 30th, 1914.	Increase *Decrease.* Amount or number.	Per Cent.
TRAIN MILEAGE.				
Passenger trains	17,977,033	21,523,630	—3,546,597	—16.48
Freight trains	16,896,368	24,164,242	—7,267,874	—30.08
Mixed trains	1,939,478	1,890,364	49,114	2.60
Total trains	36,812,879	47,578,236	—10,765,357	—22.63
CAR MILEAGE.				
PASSENGER.				
Coaches and P. D. and S. cars	87,283,067	106,852,513	—19,569,446	—18.31
Combination cars	2,829,455	2,904,782	—75,327	—2.59
Baggage, Mail and Express cars	40,691,990	47,355,009	—6,663,019	—14.07
Total Passenger cars	130,804,512	157,112,304	—26,307,792	—16.74
FREIGHT.				
Loaded	404,249,594	526,194,125	—121,944,531	—23.17
Empty	144,408,527	169,768,349	—25,359,822	—14.94
Caboose	18,476,337	26,196,664	—7,720,327	—29.47
Total Freight cars	567,134,458	722,159,138	—155,024,680	—21.47
Passenger cars per Traffic Train Mile	6.57	6.71	—.14	—2.09
Freight cars per Traffic Train Mile	30.11	27.72	2.39	8.62
PASSENGER TRAFFIC.				
Passengers carried (earning revenue)	13,086,064	15,449,849	—2,363,785	—15.30
Passengers carried (earning revenue) one mile	1,155,371,348	1,570,758,210	—415,386,862	—26.44
Passengers carried (earning revenue) one mile per mile of road	93,413	132,825	—39,412	—29.67
Average journey per passenger ....miles	88.29	101.67	—13.38	—13.16
Average amount received per passenger ....$	1.81	2.06	—.25	—12.14
Average amount received per passenger mile ....cts.	2.05	2.03	.02	.99
Average number of passengers per train mile	58.01	67.09	—9.08	—13.53
Average number of passengers per car mile.	12.82	14.31	—1.49	—10.41
Revenue from passengers per passenger car mile ....cts.	26.32	29.05	—2.73	—9.40
Total passenger train earnings per train mile ....$	1.53	1.69	—.16	—9.47
Total passenger train earnings per train mile of road....$	2,468.87	3,345.11	—876.24	—26.19
FREIGHT TRAFFIC.				
Tons of revenue freight carried one mile	7,734,433,065	10,601,426,321	—2,866,993,256	—27.04
Tons non-rev. freight carried one mile	985,500,816	1,497,306,046	—511,805,230	—34.18
Total tons (all classes) freight carried one mile	8,719,933,881	12,098,732,367	—3,378,798,486	—27.93
Tons of revenue freight carried one mile per mile of road	625,338	896,470	—271,132	—30.24
Tons of non-rev. freight carried one mile per mile of road	79,679	126,614	—46,935	—37.07
Total tons (all classes) freight carried one mile per mile of road	705,017	1,023,084	—318,067	—31.09
Average amount received per ton per mile of revenue freight cts.	0.773	0.753	0.20	2.66
Average No. of tons of revenue freight per train mile	410.62	406.89	3.73	.92
Average No. of tons of non-rev. freight per train mile	52.32	57.47	—5.15	—8.96
Average No. of tons of (all classes) freight per train mile	462.94	464.36	—1.42	—.31
Average No. of tons of revenue freight per loaded car mile	19.13	20.15	—1.02	—5.06
Average No. of tons of non-rev. freight per loaded car mile	2.44	2.84	—.40	—14.08
Average No. of tons of (all classes) freight per loaded car mile.	21.57	22.99	—1.42	—6.18
Freight train earnings per loaded car mile ....cts	14.79	15.17	—.38	—2.50
Freight train earnings per train mile....$	3.17	3.06	.11	3.59
Freight train earnings per mile of road...$	4,832.53	6,749.41	—1,916.88	—28.40

GENERAL BALANCE SHEET, JUNE 30th, 1915

ASSETS

PROPERTY INVESTMENT:		
Railway	$349,989,662.34	
Rolling Stock Equipment	153,595,062.73	
Ocean, Lake and River Steamers	24,208,595.28	
		$527,793,320.35
ACQUIRED SECURITIES (COST):		
Schedule "A"		111,652,627.03
ADVANCES TO LINES AND STEAMSHIPS UNDER CONSTRUCTION		42,472,295.22
ADVANCES AND INVESTMENTS		10,457,984.79
DEFERRED PAYMENTS ON LANDS AND TOWNSITES SALES, No. 2		7,431,543.04
*SPECIAL INVESTMENT FUND:		
Deferred Payments on Lands and Townsites	41,328,916.47	
Government Securities	10,088,734.86	
Deposited with Trustee	4,452,417.41	
		55,870,068.74
WORKING ASSETS:		
Material and Supplies on Hand	$15,729,605.49	
Agents' and Conductors' Balances	2,775,683.51	
Net Traffic Balances	502,500.43	
Miscellaneous Accounts Receivable	8,870,601.74	
Cash in Hand	17,055,269.63	
		44,933,660.80
OTHER ASSETS:		
Schedule "B"		131,241,869.49
		$931,853,369.46

LIABILITIES

CAPITAL STOCK:		
Ordinary Stock	$260,000,000.00	
Four Per Cent. Preference Stock	80,681,921.12	
		$340,681,921.12
FOUR PER CENT. CONSOLIDATED DEBENTURE STOCK		176,284,882.10
MORTGAGE BONDS:		
Canadian Pacific Ry. 1st Mortgage 5 per cent.	2,749,180.00	
Algoma Branch 1st Mortgage 5 per cent.	3,650,000.00	
		6,399,180.00
NOTE CERTIFICATES 6 PER CENT		52,000,000.00
PREMIUM ON ORDINARY CAPITAL STOCK SOLD		45,000,000.00
CURRENT:		
Audited Vouchers	4,054,309.08	
Pay Rolls	3,647,354.54	
Miscellaneous Accounts Payable	4,850,646.07	
		12,552,309.69
ACCRUED:		
Coupons due July 1st, 1915, and including Coupons overdue not presented	648,094.03	
Rentals of Leased Lines	182,520.08	
		830,614.11
EQUIPMENT OBLIGATIONS		12,780,000.00
RESERVES AND APPROPRIATIONS:		
Equipment Replacement	1,200,082.16	
Steamship Replacement	7,492,891.98	
Reserve Fund for Contingencies	2,159,491.38	
		10,852,465.52
NET PROCEEDS LANDS AND TOWNSITES		65,979,356.16
SURPLUS REVENUE FROM OPERATION		83,019,483.06
SURPLUS IN OTHER ASSETS		125,473,157.70
		$931,853,369.46

I. G. OGDEN,
Vice-President.

AUDITORS' CERTIFICATE.

We have examined the Books and Records of the Canadian Pacific Railway Co., for the fiscal year ending June 30, 1915, and having compared the annexed Balance Sheet and Income Account therewith, we certify that, in our opinion, the Balance Sheet is properly drawn up so as to show the true financial position of the Company at that date, and that the relative Income Account for the year is correct.

PRICE, WATERHOUSE & CO.,
Montreal, August 6th, 1915. Chartered Accountants (England)

*Security for issue of Note Certificates, $52,000,000.